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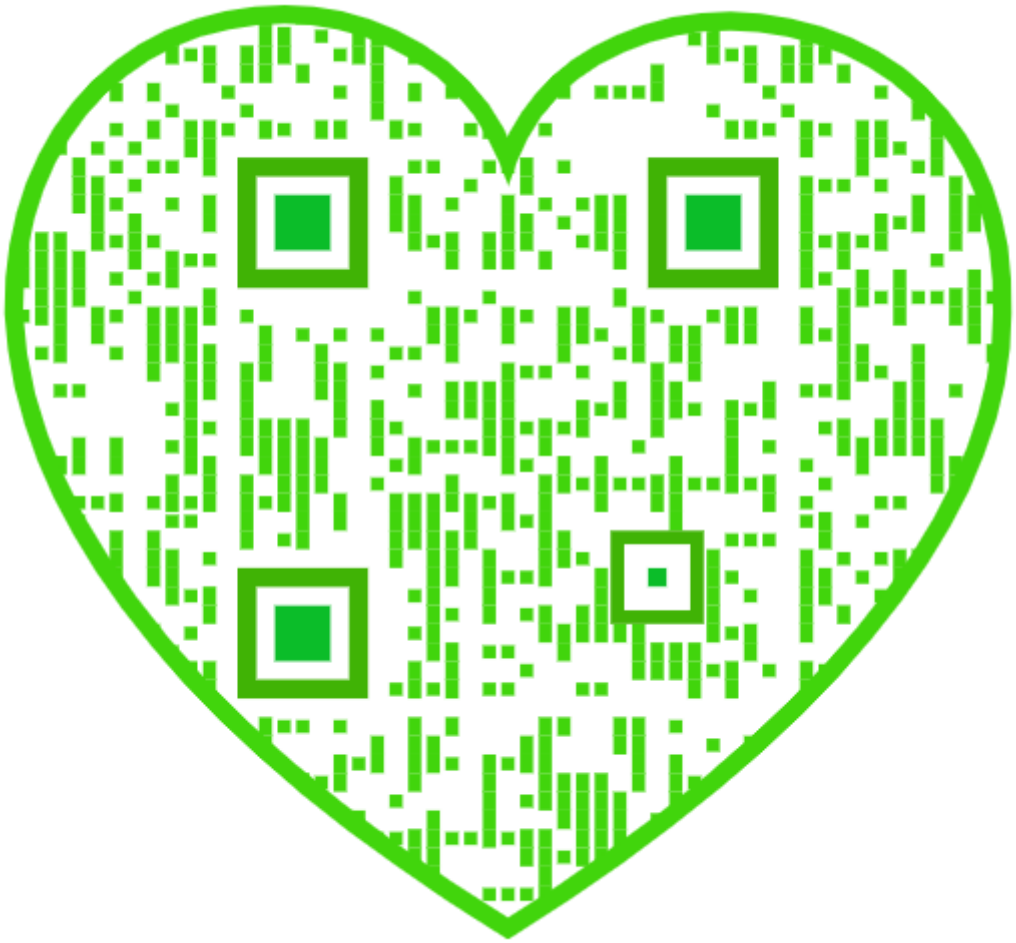

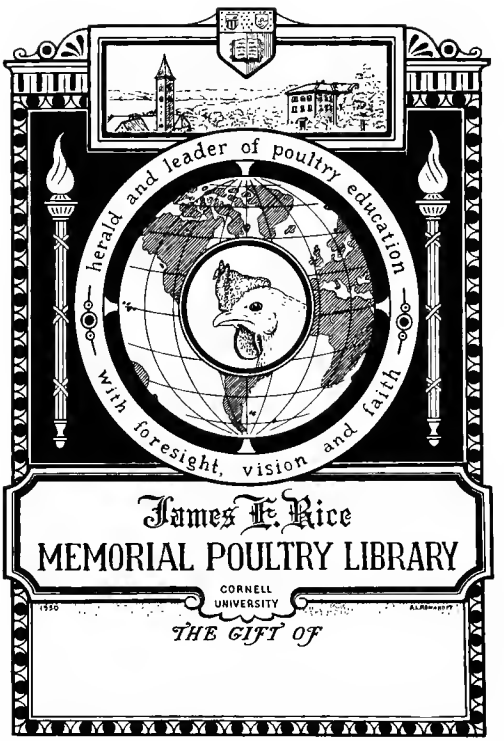

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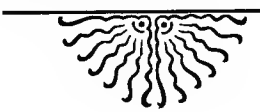
Poultry Diseases
And Their Remedies

The cause, symptoms, and treatment of all diseases known to Poultry . . .



BY

J. GAYLORD BLAIR

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INTRODUCTION

The pleasure of helping others is one of our greatest blessings. When we help others we help ourselves, and our joys increase. This book is intended to render assistance to all persons who keep fowls and who may some time need help while their birds are stricken with disease. The name of this little book describes its nature: "Poultry Diseases and their Remedies." This little book was not written in a day nor a month, but it has taken me years to get it ready to place before the public. During all the past years I have given this subject my earnest and careful study and I feel that I am in a position to give the poultry world something that they will appreciate. I have tried to avoid technical terms and any one capable of understanding the simplest written language cannot fail to comprehend the full meaning of every subject treated. In sending out this little book into the world I feel that the benefits should be equal. The information contained in its pages has been sought from all quarters and from the most progressive and up-to-date thinkers on these subjects. From this store of information and my own practical experience I have prepared this book, and dedicate it to the poultry raisers of the world.

J. GAYLORD BLAIR, Author

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CHAPTER I.

REQUIREMENTS OF HEALTH

How to keep your birds healthy—How to prevent Disease From breaking out in a flock—With helpful suggestions—Selecting the breeding stock, Feeding, Housing, Etc.

It is easier to prevent disease than it is to cure it, therefore we should study the different things that cause the diseases and try to prevent them. In most every case where diseases break out in a flock it can be traced back to filthy quarters, improper feeding, or neglect of care and attention on the owner's part. Remember that the owner or the person that cares for them has the entire control over them. We can kill any undesirable specimen at any time; if it is sick we can either kill or isolate it at once. This gives us power to prevent and stamp out the disease or trouble to some extent. If we will take every disease in time we can most always check it from spreading. Of course we can't prevent sudden climatic changes, accidents and certain insiduous contagious disorders which will occasionally break out on the best regulated plants, but in most every case disease can be prevented by good care and the proper management of the plant.

As a general thing disease is not thought of until it is present, in this case the birds are not properly taken care of or they would not be apt to contract disease. Their food is not right, the water is impure, the attention of the owner is not what it should be and all of these things placed together will make something large. We think

that this little matter will not amount to much but if we neglect one thing we will another and before we realize what we are doing we have neglected other things. Small things placed together will make a large one. One penny might not buy what we want but if we placed more with it we can then make our desired purchase. Remember that if we will watch the small things the large ones will take care of themselves.

Most beginners do not know how to treat their birds after they get sick, they cannot properly diagnose a case. There are many diseases that affect poultry to day that some people have never heard of, is it any wonder they can't prevent and cure disease? Most people think that all diarrhoea is "cholera" and that all birds that have a discharge from the eyes and nostrils have "roup" hence they treat for these diseases and their birds die or do not improve, otherwise if they could diagnose the case and give the bird the proper treatment and care they would be able to cure the bird. In order to cure and prevent disease you must know the nature of it and then you can care for them in an intelligent manner. I believe this little book will give you all the information you will ever want in regard to the different diseases known to affect poultry.

Always Breed for Health . . .

In selecting the breeding stock always select birds that are strong, well developed and breed from no bird that has ever had any disease for this bird is likely to have a weak constitution, and it will always show in their off-spring. A bird whose comb does not look bright should also be discarded and nothing should be used in the breeding pen that does not possess a bright, red comb; this is a good sign the bird is in a healthy condition. If we expect to have healthy birds we must breed for this as well as standard points. If we have good points in other respects what good will the bird be to us if it is not healthy and robust? After we have a strong healthy flock of birds we can then have a good solid foundation to work from and begin building on. Remember the well known law of heredity, "like produces like" and if you have weakly birds in the breeding pen you can expect the off-spring to be weak also.

Shun "Cured" Birds

If you have birds that have had a serious disease do not think of using them in the breeding pen for they will produce weak birds if you do. The bird might appear in the best of condition now, still the vitality of this specimen is weak, and it may possibly show in the off-spring of this certain bird. Especially if it had roup, canker, consumption etc. There is little use to waste time and money trying to cure a diseased bird unless it a very valuable show bird. If the sickness of the bird is of a serious nature it will never be the same any more. If you know how and will use the "axe" you will be better off than the other fellow that uses $3.00 worth of medicine to cure a $1.00 bird. Never breed from "cured" birds if you do it will cause you a great lot of trouble.

Use Care in Selecting the Breeding Stock.

In the selection of breeding birds be sure that the bird has size, vigor and a sound constitution. If possible it is best to know that they have come from strong healthy birds. Breed only from birds that are matured ones. Also see that the bird is in perfect health; if the comb is a bright red, the plumage soft and smooth, legs with good color, keen apetite, etc., you can rest assured the bird is in the right condition to place in the breeding pen. Every one should use great care in selecting the birds for the breeding pens; this is one of the most important things in breeding poultry. If you get wrong here every thing is wrong. If you mate wrong for standard points or health either. It is better to have birds with strong constitutions than good standard points. Birds without health are worthless even if they are up to the standard in other respects. If you have birds that are strong and robust you can breed and improve their standard qualities but if you have them up to the standard with weak constitution you are certainly up against it. This very thing is what causes poor hatches and weak germs. How often do we hear people say that "my chickens are dying," "I can't raise my chickens, they are all dying," etc.? Low vitality in the breeding birds is the cause. They do not use enough care in selecting the breeding birds. If you hatch chicks from stock that is robust and healthy you can't hardly

stop this little fellow from growing but otherwise your results will be very discouraging.

Do not think that if you have a good male bird in the breeding pen that you can mate him with any kind of females and get good results, for you will be disappointed if you do. While the male bird is half of the breeding pen, still you must mate good healthy females with him if you expect good results from this mating. In selecting birds see that they have no deformities whatever and that they are perfect specimens in their classes, both from a physical and standard standpoint.

Inbreeding

The mating of birds that are closely related is called inbreeding. This has caused persons to fail in the poultry business. While mating two birds that are related might produce the desired results along standard lines still their off-spring would be weak and without vigor and low in vitality. In-breeding if practiced will soon bring disappointment to the breeder. Some breeders avoid mating brothers and sisters together; others breed together their best birds for their purposes, regardless of relationship. Understand your birds and know what you are doing and you will find this will be best. Remember line breeding is not inbreeding. .

Some Common Causes of Disease.

There are many things that can cause disease to break out among your flock and if all these are traced back to the origin you will soon discover it is your fault nine times out of ten. Vermin is a very common cause of disease; for birds that have vermin on them will take disease quicker, for they are in a condition that they can't throw off the germs. Impure water, dampness, crowding, improper food and care and want of exercise are all common causes of disease. Even a strong constitution is liable to break down under these conditions.

How and Where to Locate the Buildings.

All poultry buildings should face the south and should be built on well drained land. They should be dry, roomy and well ventilated. The most satisfactory plan for a poultry house is the fresh-air one. In such houses the air is always pure and you will find that birds will do much

better in such houses. The egg yield will be larger, the vitality of the birds will be higher, the eggs more fertile and will hatch stronger and better chicks. You need not have high priced land for your plant; if it is dry well drained land it will be all right and will be just as good as higher priced land. If possible have it lay or slope toward the south, south-east or south-west.

Do not have drafts over the birds or you will have trouble. Have three sides air tight and the front side open for ventilation. And do not close unless it is very stormy. A bird can stand much more cold if it has an abundance of pure fresh air to breath than it can if it is closed up in a tight house without the pure fresh air. Low roofed houses are much warmer and also cheaper to build.

Sunshine a Good Preventative for Disease

In constructing the poultry house try to plan it so as to have the sun penetrate to all parts of it. Sun light is one of the very best preventatives for disease. If there was no sun light how long would the different animals and vegetables live in this world? No poultry house should be built so the sun could not shine in it most of the day. Sunshine and fresh air is a cheap and sure disinfectant. Have both the brooder and breeding houses arranged so that the sun can shine in at all times of the day. Many small chicks die annually from the lack of sunshine in the brooder and brooder house. The brooder should be sunned and aired daily if you expect to raise good healthy chicks. Have the house arranged so that the little fellows can have a sun bath daily. Also provide shade as well; and remember if you go to extremes with either you will not be successful with your attempt. Sunshine is very important to health.

The "Dust" or Earth Bath.

The dust bath is the natural method of keeping body and feathers clean and also keeping them free from vermin. It is very important and should be looked after just the same as the other small points that help to make the poultry business successful. The best place for the dust bath is to locate it in the corner of the breeding pen and use only fresh earth, for this is much better than dust and the birds would rather have it. By dusting in this earth

bath, the birds will keep their feathers and skin clean and in a healthy sanitary condition and by adding a little insect powder, they will also free themselves from all vermin. This dust bath has been recommended for years as a sure remedy for vermin on poultry and if this is supplied the birds will do the rest. Always keep the earth a little moist. It should be changed at least every two weeks.

How to Arrange the Roosts and Dropping Boards.

Place the roosts about two feet from the floor and provide dropping boards under them. Do not place them high for this will cause the birds to injure themselves many times. If you place the roosts near the ceiling the breath from the fowls condences on the ceiling and walls in cold weather in the form of heavy frost and this makes the sleeping quarters damp and unsanitary. Do not use small narrow roosts for this will cause bumble foot, corns, etc. The best roost is made from a piece of timber 2 by 3 or 4 inches with the edges beveled or rounded. Have them arranged so as not to have any places for mites to harbor in. Have the dropping boards about four inches below the roosts and have them plenty wide to catch every thing; a board 24 inches wide is sufficient for a single roost. Clean the board every morning. It pays to keep the house clean and sanitary. Use a good disinfectant twice a week.

Avoid "House Sweating."

This can be avoided by proper ventilation and sunning. You never experience "house sweating" if you use the open front or fresh-air plan. Do not crowd too many birds in a coop or house for the result will be cold and roup. Do not under any circumstances allow more birds to occupy a coop or house than can really be cared for in such quarters for if you do it will cause you trouble. Dampness and house sweating will be the result. Airing and sunning the house will eliminate this trouble. Do not close your house tight under any circumstance whatever. Even if the temperature is very low do not think that by having the house air tight it will be warmer, for it won't.

Drinking Water.

Never allow impure water to be before your birds, for in this way probably more diseases are spread and

caused than in any other way. If the water is not pure, disease is likely to creep out on us. Even as in human beings the water is the fruitful source of trouble. Do not waste time of placing pure water in dirty fountains but clean the founts every other day at least with scalding water. Do not give your birds any water to drink that you would not drink yourself and in this way you can know they get the best of water. All drinking vessels should be made so they can be cleaned easily.

Foods.

The rations should contain grains, mineral foods, green foods, together with grit, oyster shells and charcoal. These different varieties of food have an important influence on the health of the bird. The grain food may be wheat, oats, barley, rye, sunflower seed, millet, corn, etc. Most any of the commercial scratch foods are good and in these you get this variety of grains. The green food should consist of cabbage, lettuce, turnips, fresh growing grass or sprouted grains such as oats, wheat, etc. The former preferred. In winter alfalfa leaves will be found a good substitute for green food. Mineral foods should consist of fresh beef scraps, green cut bone, beef meal and blood meal. Mineral food is very important to the health of the fowl. The best and cheapest mineral food that can be found is fresh green bone. This can be secured very cheap if you get the bones from the butcher shop and cut them on a bone cutter. There is no better egg producer than this.

You can also keep a dry mash before them at all times in hoppers and the birds go and eat as they wish. This mash should consist of one part wheat middlings, two parts bran and one part corn meal. To every peck of dry mash add a tablespoonful of fine table salt. There is no better food for fowls than butter milk, skim milk and clabber. These are also very good for moulting birds.

Do not over feed your birds and get them too fat. Feed all grain in a deep litter and make them exercise after all the grain food they get. If you get your birds too fat, you will be troubled with egg bound birds, leg weakness, apoplexy, congestion of the brain, etc. Feed only what they will clean up and no more. Use good judgment

in feeding your birds if you see they are getting too fat you can cut the ration down.

Exercise.

It is just as important to have our fowls take exercise as it is to take exercise ourselves. Of course we realize what it would do for us if we did not take exercise. Our health would soon break down if we did not take exercise of some kind daily. If you will make your birds exercise you will find they will be healthier, more robust, and will hatch stronger chicks from the eggs laid by them. This will also keep them from getting over fat. When you see a bird suffering from being over fat or having congestion of the brain and apoplexy you can say right then that these troubles were brought on by not making your fowls take the proper amount of exercise.

When you feed dry mash from hoppers you should let the birds have free range as much as possible. In feeding grains you should feed it in the litter and make them work and exercise after the last grain of it. If you feed the grain in the morning this will keep them scratching after it most all day. Birds will lay more eggs while they are confined in yards than when running on free range but as a general thing they do not hatch as well and what chicks that do hatch seem weak. This is caused by not enough exercise.

Even small chicks need exercise and if you give them the right food in a litter they will begin to scratch for it when they are only a few days old and this is what makes them grow fast and develope into large robust fellows. Just as soon as they get large enough to look after themselves it is better to make them roam out into the field and you will find that they will grow faster and make much better birds than they would if they were allowed to stand around your door all day looking for you to throw them something to eat. Birds that try to make their own living and roam out into the fields are the ones that make the winners and good breeders. Remember that sunshine, exercise and fresh air is the best preventative known for diseases.

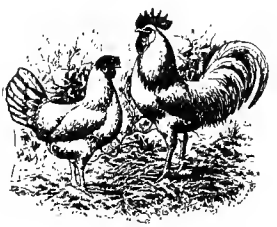
How to Handle Contagious Diseases

Did you ever notice that the first birds to take some

contagious disease is always the weakest one in the flock? Birds that are healthy and active are seldom stricken with disease. To prevent a contagious disease from spreading you should isolate the sick bird at once as soon as discovered. Begin to clean up the house and remove all litter, dust and clean thoroughly and disinfect with a good reliable disinfectant and continue this every day. Remove the litter on the floor every week at least. In handling diseased birds you should not go direct to the well ones for all this is a good way to scatter the germs. Do not keep the sick birds in the same room with the well ones. It is a good idea to have a pest house and keep all sick birds in it until they get entirely well.

Avoid Tonics and Medicines.

A bird that you have to "doctor" up all the time with tonics will be no value as a breeder and you should not fool trying to get this bird in the right condition for breeding purposes, for the chicks hatched from such birds will be weak and will never amount to anything. Do not give tonics and egg foods to healthy birds thinking that they will lay more eggs for they are doing their best and it will only tend to weaken the organs of the bird and the result will be a fall off in the egg yield. The less dosing you give your birds the better off they will be. If you keep grit, oyster shells and charcoal before your birds at all times they will not need much if any medicine. A good disinfectant is very beneficial and should be used about the house and yards every week at least but out side of this tonics and medicines are not necessary and if you have birds that have to be dosed to be kept alive you should get rid of them at once.



CHAPTER II.

THE SKIN

Chickenpox

A disease that is not always fatal, but one that will bring down the General Health of Fowls and opens the Way for other diseases—two species of the disease—Symptoms and Cure.

This disease that is known as sore head, warts, pigeon pox, pian, etc. is in my opinion one of the worst diseases that can affect poultry. Chickenpox is not necessarily fatal, but it is a disease that will soon bring down the general health of a bird, and therefore opens the way for other diseases. Some years past when I was not as familiar with it is I am now, I thought cholera an roup were the worst diseases that could affect poultry, but now I do not think it. During these years past I have had experiences with almost every disease known to affect poultry, and I must say that chickenpox is one of the worst I had to deal with. Before this I thought it was nothing more than a few little "Pimples" that would appear on the comb and wattles of birds and hence I did not know how to take it, but since I have found that these little pimples grow like weeds and will soon make large ones that will cover the whole face of the bird in one night's time. Of course some cases will be milder than others, and in such cases there will only be one or more very small warts or pox sores. With chicken-pox you are also liable to be annoyed by two other very bad diseases, canker and roup. Whenever these warts or pox sores come in the mouth of the bird you now have canker to contend with and when

the birds catches the least bit of cold, roup is very likely to be your next enemy.

What Cause This Growth?

There must be some moisture present to produce this fungus growth, therefore, it is more likely to break out among your birds in the late fall when there are weeks of dark, damp weather. If it appears in the dead of winter you are not likely to be annoyed very much. Houses that are not kept clean, and are allowed to become damp and wet, and especially when the accumulated droppings are allowed to become damp. This is an ideal place to grow these germs. These germs are known as bacteria and they are very small, living organisms, and can only be seen by means of a miscroscope. Warmth and moisture favor the development of these germs, and it is always of a milder form in the North than in the South. When it breaks out among a flock there is no use to isolate the affected birds; most of the other birds have been exposed to it, and the symptoms will begin to appear in a few days. The best thing you can do to check it is to place a few drops of creolin or permanganate of potash in their drinking water, and allow no other drink for them. Begin at once to clean things up and disinfect thoroughly with some good reliable disinfectant. Let the house air and dry well. Remove the old litter and replace with new, also clean the old droppings away. If everything is watched up close and kept clean you will be rewarded for it later, by getting the trouble under headway.

Two Kinds of Chickenpox, Moist and Dry.

There are two kinds of chickenpox, the moist and the dry. I do not know which kind is the worst but I notice the miost variety always appears in or about the eyes. The bird will sometimes lose both its sight and its eyes. The pox warts will appear on the sight and cause the bird great pain and loss of the eye. In some cases the eye will go out in one day's time, then the glands in and about the eye will become affected and the eye will run water for some time, later turning to a cheesey matter. Now you have canker to deal with. The dry variety I think is the easiest to cure. The moist variety will be a dark bluish

color and the sores or warts will be of a very oily appearance. The dry is a lighter color, and the surface very dry and crusty.

Symptoms.

About twenty-four hours before the warts appear the comb and wattles will have small specks of dry blood on them, then the warts will appear later. The bird will have a very high fever, will be very thirsty, and will stand around and sometimes sit on the roost all day. The small round swellings called nodules, now appear and are flattened, but later, become elevated and are of a yellowish or a red color. They are seen in most cases first upon the featherless parts of the head. From the time they first appear until about three days afterwards they will appear very fast, and will be in thick clusters, and in some cases this fungus will grow or multiply until it covers the whole side of the face or comb. In mild cases these warts will be scattered over the face and comb and will not grow to be any size. The condition of the bird when the disease breaks out, determines the course or how bad it will end. If the system of the bird is in good shape the disease will be light, but if in bad shape the disease will more than likely to go very hard with it. These warts may appear on any part of the body, but they most generally appear on the face and combs, and under the wings. They will vary in size very much, some will be about the size of a pin head, while others may be as large as a pea or bean or even larger than that. As long as you can keep the nodles confined to the head and face you are all right, but just as soon as they appear in the mouth, throat, and nostrils your trouble begins.

Roup and Canker Now Appear

The inside of the mouth will now become full of thick saliva, sores will now appear on the tongue and on the roof of the mouth, and sometimes down in the throat and at the opening of the windpipe. The nostrils will have a discharge running from them, the eyes will run a milky looking watery fluid, which will later become thick and purulent and cause the lids to stick together. Now as this watery matter is full of these germs (bacteria) it will begin to get thicker and thicker until it will be of a

very hard cheesy matter. Now you are up against it. You have canker and roup to contend with and the best thing for you to do at this time is to kill and cremate all birds that are affected. You will always notice that birds that get this far along and develop canker and roup are the weakest in your flock and it always goes hardest with them.

If you will catch the bird you will soon discover that it is very thin and seems to he a fit subject for the "boneyard." It will stand around on one foot without any energy, will refuse to drink or eat, and you will have to feed it in order to prevent starvation. The feathers will stand on their ends, and the bird is certainly a poor looking prospect of ever amounting to anything if it should happen to pull through. In twenty-four to thirty-six hours after chickenpox makes its appearance the bird will be thin, where before it was fat and in good shape. This dreadful disease will certainly cause the bird to decrease in strength and flesh.

Treatment.

The first thing to do in treating the affected birds is to place them in a light, dry, well ventilated coop bedded with plenty of clean straw. Change this at least every other day, and do not allow it to get the least bit damp or wet, for you will have a place for germs to accumulate. I believe I said above that it was no use to isolate birds after they were exposed to it, but you will have a better chance to treat them if you will place them in a coop away from the rest of the flock. It will be only for treatment and not for the protection of the well ones.

After you have removed the affected birds from the well ones, begin to clean out the houses and coops. Remove the droppings from the roost or dropping boards, clean the old litter from the floor, remove the nests, and in fact clean the house of every thing that you can get out. Sweep it and remove all particles of dirt, dust, etc. Now get several buckets of water and place three tablespoonfuls of carbolic acid in each bucket so as to make it real strong. Take an old broom and begin to scour it from top to bottom. Be sure to begin it in time so it will be dry for the fowls to roost in the following night. After

you do this take a gallon of water and add to this enough of creolin to turn the water milky color and if you have a sprayer take it and spray every crack, nest, etc., full of this solution. Then go out in the yards or runs and spray well. Let the house air and dry well then place clean bright straw on the floor and make new nests. Now you have the house perfectly clean and ready for the birds to roost in again. Give the well birds a few drops of creolin in their drinking water and if you have only a few birds to treat you can prevent the well birds to some extent from taking it by bathing their combs and face wtih a 50 per cent solution of creolin and water several times a day.

Treating the Sick Birds.

The wart or pox sores have appeared. You can now remove them with your finger nail. Upon doing this you will discover the tissue underneath will be a bright red and will bleed. This is all right. Never mind the bleeding, but after you have removed the warts apply pure dioxygen to the raw surface. This will foam up like soap suds but this is the good of it. It is destroying the germs (bacteria) that are present. If no bacteria is present it will not foam. After applying the above to them, now with a feather apply pure creolin to these raw parts. In twenty-four hours this will form a black scab over them which will dry and fall off in three or four days leaving a new skin underneath, but in the meantime you can still apply dioxygen to these black scabs for fear there may be some more germs present.

If the eyes become affected and in most cases they do, wash them out with a 50 per cent solution of dioxygen and water, and watch them and do not let any pus form in them but clean them out twice a day at least. When the eye goes completely out the only thing that you can do is to keep the cankerous growth from appearing, by applying dioxygen and creolin to the affected parts. If the pox sores or warts appear near the mouth or inside treat as above, but if canker sores come remove the yellow growth and apply dioxygen to the raw parts as long as it foams them apply burnt alum and boric acid equal parts with a straw or small powder gun. If the bird takes cold give it a one grain tablet of quinine night and morning until it is

broken up. Give twenty drops of nox vomica in a quart of drinking water to the sick bird as a tonic.

Feed on stimulating food so as to keep the birds in as good shape as possible. If both eyes are affected you will have to feed the bird from your hand to keep it from starving. A bird will eat soft food when sick before it will hard so remember, always, to feed a sick bird on soft mashes.

Fish-skin.

This disease resembles scaly-leg very much as it presents a very rough, dry, dirty appearance on the shanks and toes as we find where scaly-leg is present. Although fish-skin has no parasite life at work but it is the general belief that it is caused from some very bad functional action or disturbances of the bird. It is not contagious by any means and can not be passed from bird to bird. Filth may be one of the causes; for the legs certainly have a bad appearance. The affected parts seem to cause the bird much pain or annoyance by irritation which compels the bird to scratch, thereby increasing it.

Treatment.

Local treatment is all that can be recommended for fish-skin and rub well with carbolated vaseline, this will soften the dry scales and remove the irritating annoyance and greatly help the appearance of the shanks and toes. Continue the treatment until the trouble is cured.

Eczema.

This is another disease that we do not know hardly how to class, some seem to think that eczema is the same as white comb but I disagree with them there for it is no doubt that they are two separate diseases. But both I believe come from about the same source, some constitutional cause. It is purely a blood disease caused from overfeeding of a highly nitrogenous ration which will cause excretion to be affected. Some of our best medical authorities claim, eczema in the human race is a skin disease instead of blood. And most of them give local treatment instead of internal. If the blood is right the skin is bound to be so I stick to it that you should go to the bottom of the trouble and get the blood in the proper condition.

It is not contagious and is never passed by contact from bird to bird. An improved diet is needed very badly; more clover and green food should be fed.

Symptoms.

White pimples will appear on the comb and wattles, later increase in size and break and run together, dry on the surface and become crusted and present a very bad appearance. They are very fine and white and somewhat raised and seem to have just the thin skin over them. The bird will have no energy, little appetite, listless and a very tired appearance indeed. After a few days the bird will decrease in flesh very rapidly.

Treatment.

Isolate for treatment, and begin feeding more green food, cut clover, green vegetables, etc., and feed liberally. A few drops of nux vomica in the drinking water will help build up the bird's constitution. Change your method of feeding at once and give free range to the rest of the flock where they can have plenty of exercise and green grass which will stimulate digestion and blood circulation.

To the affected birds annoint the parts with eloate of zinc. And give two grains of calomel every other day for four or five times. Also one grain pill of citrate of iron and quinine every morning for one week. This will help clear the system up and increase the strength and health of the bird.

Wind Puff.

The cause of this trouble is unknown. It appears in both old and young birds but it appears mostly in chicks. I have seen hens that were three years old have it and they were puffed up until they were as large as two hens should be. It is a gathering of wind under the skin, hence it is where it took its name.

Treatment.

Puncture the skin with some instrument and let the air escape, a large needle will answer the purpose very well. If after several treatments the wind still continues to gather you can take a small pair of shears and clip out some of the skin and apply some carbolated vaseline.

CHAPTER III.

LEGS AND FEET

Bumble-foot.

This trouble will cause the bird much pain and worry because this inflamed and tender condition is on the bottom of the foot and of course the bird must use the affected foot more or less which causes the inflamed parts to become more irritated. The tissues underlying the skin become irritated which usually develops pus or matter. As the trouble develops and the pressure increases causing the blood supply to be shut off, pus forms and increases very rapidly which works out in other parts of the foot and leg. If something is not done for the bird death is most sure to follow.

Causes.

In most cases that I have seen, bumble foot seems to come from a bruise or corn and it is the general belief of poultrymen that it is caused by birds jumping from high roosts down on the hard floor. It can be caused from some foreign body getting in the foot and causing the irritation. Splinters, bits of glass, thorns, etc. Or it could be caused by germs (bacteria) getting into some puncture produced by the above foreign bodies rather than jumping from high roosts for I have known cases of it where there were no roosts to jump from.

Symptoms.

The bird will limp slightly at first and as the disease advances it will walk with great difficulty, and sometimes sit down most of the time. You will notice the bird when walking that it will hurry to get from the bad to the well

foot. Advanced stages show more or less swelling in the foot and leg, especially in the ankle joint.

Treatment.

When the case is in its early stages it can usually be cured by painting the affected parts with iodine every day for one week. In real bad cases where there is a great deal of swelling and pus, it will be necessary for you to open the foot and let the pus out so you can reach the bed of the trouble. With a sharp, clean, thin bladed knife lance the foot, let the pus run out, now with a little luke warm water wash the wound out thoroughly. Now apply dioxygen to the wound and when the liquid ceases to boil in the wound, dry with a soft linen cloth or better still use absorbant cotton. Now wash the wound out with a solution of nitrate of silver, about twelve grains to one ounce of distilled water. Another very good remedy is to wash it out with a solution of carbolic acid and water, about a one per cent solution. And anoint daily with carbolated vaseline.

Keep the bird in a roomy coop well bedded with clean straw and do not let it out on the ground until it is entirely well of the trouble. It is of a very little use to treat the bird then let it run out on the dirty, filthy yard. When you see a bird tip toeing or limping you had better examine it at once and the quicker you get the trouble checked the better it will be. Some cases have run on until the best of treatment will be of little use. If you will place a few drops of nux vomica in the drinking water it will be a good tonic for the bird while under treatment.

Leg-weakness.

Leg-weakness is seldom seen in light breeds such as Leghorns, etc., but is very often found in some of the larger breeds of the Asiatic class also the English and American classes. We seldom see it in old birds but chicks up to six months old. Small chicks very often fall prey to it; and we usually find back of this trouble some very bad methods of feeding. When any one tries to increase the weight or size of a bird at the expense of time, this trouble will be sure to make its appearance in your flock. The weight of the body is larger than the legs can support, hence this is where the disease first took its name. Often

you find it where condiments or "egg foods" have been fed in very large quantities. Where fat producing foods have been fed in large quantity and feeding too little bone and muscle food, leg-weakness appears. Usually bad judgement in feeding is the main cause.

Symptoms.

Be careful not to get leg weakness and rheumatism confused for they work very much alike only in the former, the joints do not swell but they do in rheumatism. In leg-weakness the muscles will work to some disadvantage, the gait will be unsteady, and the bird will walk some few steps and then sit down as if tired. The first symptoms is a very slight weakness in the legs and would hardly be noticeable to a stranger but one accustomed to the flock will notice it readily. As the case developes the bird will be seen sitting down while eating. At this time the bird seems to be in perfect health only the weakness of the legs but in a few days the feathers will be standing on their ends, it is picked at by the rest of the flock, will not eat anything, and now it has a very bad looking appearance indeed and will cause the owner a lot of worry.

Treatment.

Cut out the fat producing foods such as corn, corn meal etc., and place the bird in a coop away from the rest of the flock so as to keep them from running over the sick bird. Feed the rest of the flock only three times a day and do not feed them every time you go about them. See that they are not crowded on the roost. Feed cut clover and green food and if possible give them free range on a grassy and sunny range as nature intended them to do. Make them work for what you give them; exercise is a good remedy for leg-weakness for this will prevent them from getting so fat. In place of water give milk and feed bran, wheat and oatmeal.

For the birds that have leg-weakness use the following; rub the legs with a tincture of arnica and place in the bird's drinking water a few drops of tincture of nux vomica and place some meat meal in the morning mash. Do not feed corn until they are well again and then give it to them in small quantities with other grains.

Remember that leg-weakness is brought on by over-

feeding and this can be helped or prevented by careful use of fat producing foods. It not only weakens the bird but will weaken the vitality in their off-spring.

Rheumatism.

This is a very annoying disease to the owner of fowls as well as to the fowls themselves and should be guarded against as much as possible. It will affect all parts of the body but the legs are the principle parts, in fact you notice it here first. Exposure to cold, damp, chilling winds aggravates this disorder. It may be produced by feeding too much animal matter and the under feeding of vegetable foods. Some say it is handed down from parent stock which were affected with it. I think this is true as well in fowls as in human beings. It is more likely to appear in the damp, chilly days of fall than at any other time of the year in both young and adult birds.

Symptoms.

The first symptom you notice is the jerky gait in walking and the tendency to squat upon the floor. The muscles will contract, joints will swell. The contracting of the muscles will draw the legs out of the regular position and in trying to straighten them will cause the bird great pain. It is the inflamation and pain in the muscles and joints to cause the bird to want to sit all the time.

In some cases the bird will die very suddenly and without any cause apparently. Upon examination of the bird after death you will find a small sack covering the heart to be filled with a watery fluid. This is what causes the trouble, by disturbing greatly the action of the heart. Rheumatic troubles can also be traced back to a congested liver sometimes.

Treatment.

Bathe the swollen joints with weak alcohol twice a day for a week or rub with extract of witch hazel. For internal treatment give fifteen grains of iodine of potassium in a quart of water, for both chicks and adult fowls. Or another good treatment is to give a dose of Epsom salts, twenty grains, and follow the next day with fifteen grains of bicarbonate of soda in each pint of their drinking water. Keep the affected birds from becoming exposed to

cold, damp winds and do not let the houses and coops become damp or filthy for under such conditions you need not expect to keep the disease under headway.

Feed an abundance of green food and do not forget to feed cut clover in the mash. If the trouble appears in the summer when there is plenty of green grass give them free range in the orchard or pasture if possible.

If the brooder chicks falls it prey you should keep the floor perfectly dry. Provide drinking fountains so they will not turn it over on the floor, keep the heat uniform under the hover and some facilities for scratching in order to get plenty of exercise. Give one feed which contains lettuce, cabbage or some other green food and feed the other feed in the litter so as to make them work and get the exercise they need to make them have the right health and vigor. Prevention is always the best cure.

Broken Shanks.

I think most every one that have fowls have had some experience with broken shanks. There is hardly a year passes that we do not have some chickens that meet with some accident and get some of their bones broken. They very often get fastened in a wire or picket fence and in trying to free themselves they break one or more bones. Some of the stock on the place often step on them and a break results.

Treatment.

Broken shanks are very easily to set and put together again and the younger the bird the quicker it will knit together just the same as the human family. If the thigh or wing is broken there is no use to try to treat the bird for such treatments are very unsatisfactory and the pot is the best place for such cases.

Breaks will unite very quickly if they are placed together and kept there. The best splints for little chicks are common toothpicks but you will have to make larger and stronger ones for grown birds. Set the broken bones and place splints on them and wrap with cotton and tie so it will not come off. Place the birds in a coop away from the rest of the flock. Make three wraps with the cotton next to the birds leg, then place the splints on, then

finish wrapping with the cotton and sew well with needle and thread.

This is all the treatment they will need and the bandage can be taken off in about two weeks.

Scaly-Leg

To a person who has never seen a case of scaly-leg, the name itself would give the novice at once an idea as to what the disease was, but I think most of us have seen this disease and know just how to take it. I believe most every one who has chickens has had some experience with it. Scaly-leg is no fatal disease by any means but it is a worry to the owner as well as disgusting. It is very annoying to have your birds with such dirty, filthy looking legs, and the treatment and cure is so simple you could not afford to have your birds disgraced by it.

Cause.

It is caused by a small parasite and it is very contagious and after the first case appears in your flock, if you do not begin at once to get rid of it you will be bothered with it very much and the first thing you know your whole flock will have it. It is passed from one bird to the other while they are on the roost or while the chicks are with the mother hen. Or it might possibly come from an infected house or brooder. Filth is a common cause. Where filth accumulates for a while scaly-leg is almost sure to appear.

Symptoms.

The legs have a very bad scaly looking appearance, they will be white looking and crusty and if you will remove the scales and place them under a miscrope you will readily see the parasites or living organisms. The parasite irritates the leg causing the scales to be pushed apart and dirt begins to accumulate which does not help the irritation any, and the trouble gets worse day by day until the legs will be as large as two in some cases. It is certainly a very bad looking object to look on a bird with scaly leg.

Treatment.

As soon as you discover the disease in your flock you should begin on it at once. First get a bucket of warm

water, some soap and a sponge. Place the bird in the pail and begin to soften the scales letting them soak in the water; after they get pretty well soaked take the bird out and with an old cloth wipe the legs dry. Now take about a half a cup full of lard and melt it. To this add three teaspoonfuls of sulphur, six drops of creolin and mix thoroughly and apply to the legs. Now bandage this on with some cotton strips and strings so as to keep the ointment to the affected parts and you will get a much quicker cure. Let the bandages stay on the legs for about two days and you can remove them and apply again and still apply until you get a cure. You will not have to apply so often in mild cases.

Another good remedy is to dissolve naphthalene flakes in kerosene and apply to the legs. Use all the naphthalene that the kerosene will dissolve. Be careful not to get the fluid on the tender skin for it might blister if you do. After dipping the birds legs in the fluid place the bird in a pen well filled with straw so it can begin to exercise at once or place in an out door run. It is best to treat the bird in the morning then there is no danger of the fluid getting on the feathers and soiling them when the bird gets on the roost.

Use as many treatments as the disease requires; of course some cases will require more than others only as to the severity of the disease. Any of the above remedies will effect a permanent cure and give good satisfaction.

Dropsy.

Dropsy of the feet is generally caused by improper circulation of the blood. Either a congested liver or a tumor tends to hold back the circulation of the blood or effects it and when the least thing affects the circulation it will cause the legs and toes to increase in size.

Treatment.

Give the affected bird a dose or two of castor oil; this will generally help the trouble. Make the bird do more working after the feed you give and this will stimulate the functions of the entire body. Brooder chicks that have dropsy should be made to exercise after all the food they get. Place chaff or cut straw on the brooder floor

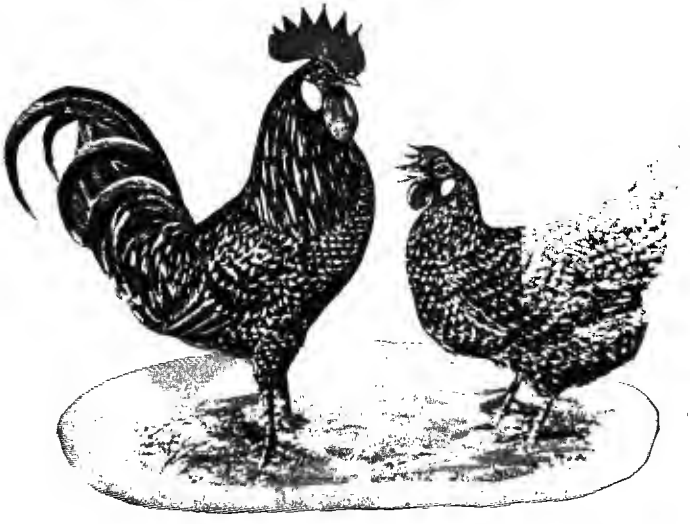
and make them work for it. Overfeeding without any exercise is the main cause of dropsy in brooder chicks.

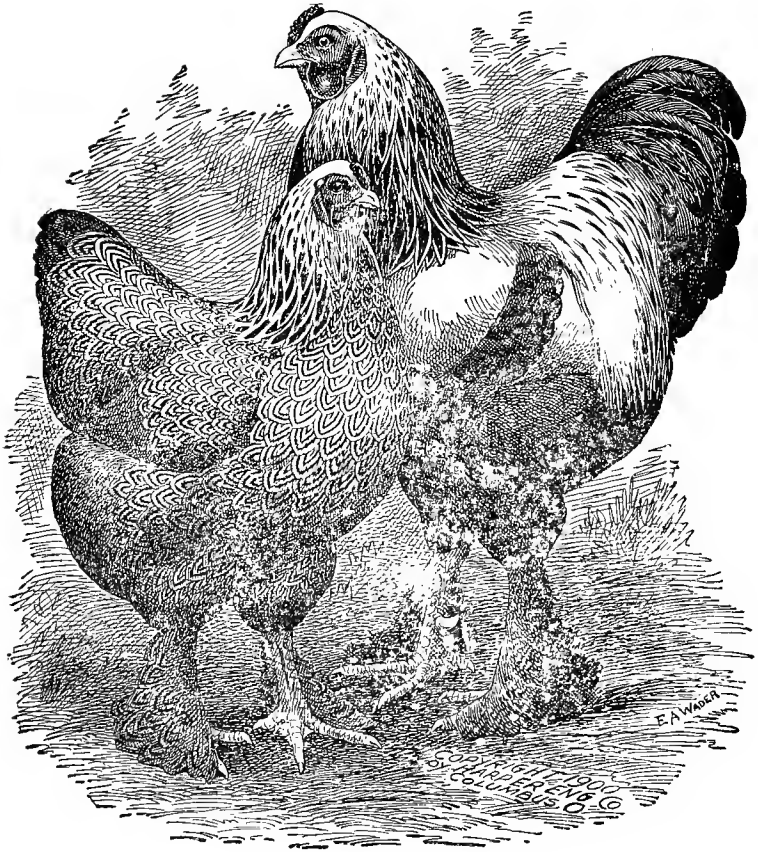
Cramps.

This disease is something on the order of Leg-weakness only cramps will affect small chicks while the former will affect half grown chicks and fowls. The common cause is over-crowding; but over-heating, and not enough exercise will cause it.

Treatment.

The treatment is very simple. Have larger brooders or cut down the size of the flock in proportion, make them take more exercise, and keep the temperature at a uniform heat so they will spread out on the floor and not pile up together. Exercise will go a long ways towards preventing cramps.

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CHAPTER IV.

HEAD, THROAT AND NASAL PASSAGES

Roup.

Its Cause, Symptoms and Treatment—How to Prevent It—With Remedies that Will Prove Effective.

This disease is one of the oldest diseases known to affect poultry and it seems as though most everyone should be very familiar with it, but I am sorry to say they are not. Many people have the wrong idea of roup; they think every bird that has "frothy eyes and a running discharge from nostrils" has roup; in fact this name has been given to all diseases that show the above symptoms. There are many diseases that affect poultry that work very much like roup but they are different diseases altogether. Roup is very easily detected from colds, diphtheria, grippe, etc., for the simple reason the "roupy" smell is not present in any of the above diseases. There is but one disease that has a right to be called roup and after a little experience you can easily detect it from the others. After you once get the opportunity to handle the birds with roup you will never forget the "roupy" smell that is present in all cases. If you ever get the opportunity to have two birds together, one with roup and the other with a common cold you should examine them closely and you will find the difference between the two; and you will always know after this. I wish every person who raises poultry could study the different diseases, I know they would soon learn to like it and in a little while would know how to treat them proper-

ly. This is one great trouble with most people they cannot diagnose a case.

Roup is probably one of the greatest hinderances in the poultry business; and if nothing is done to prevent and cure it after it breaks out in a flock of birds there is certain to be a great loss from it. In some flocks it may not kill but only a few birds while in another it will kill the greater portion of it. The direct losses from the disease will vary greatly in different epidemics, and the severity of the disease depends on the condition the flock is in when it first breaks out.

As I said above that all poultry ailments that are accompanied with "frothy eyes and a running discharge from the nostrils" has been termed roup. All colds will have these symptoms, also diphtheria, grippe, etc., but remember all colds are not roup by any means. Fowls are subject to colds just the same as ourselves and are not any more dangerous if taken in time. Of course, colds may develop into roup if they are allowed to run their course, but we should begin treating them immediately as soon as we find such cases in our flocks.

A bird that has roup is very slow to recover and will never be the same any more. For the bacteria that is always present in roup seems to be in the bird's system all the time. They are unfit for fattening, breeding and egg production. They remain thin although they will eat just as much as any other member of the flock and are living at the expense of their keeper. The disease is very contagious but more so in some flocks than others, all cases should be regarded dangerous whether they be mild or serious for some of the worst cases that have come under my observation in the past years originated from very mild cases. In large flocks especially those on the farm the death rate is not noticed so much as in a small flock. Roup if taken at once after it makes its appearance in your flock will not amount to very much, but if you let it run on you are almost sure to have a great loss.

Roup Likely to Appear at Any Time.

Roup is in "season" twelve months in the year, it will come in the warm summer days but you are more likely to have it during the late fall months and winter than at any

other time. The frosty days of the early spring will also help develop some cases. But most cases will make their appearance during cold, damp, dark days of fall and winter.

Cases that break out during warm weather come from old germs that are present and the fowls get them either from drinking vessels, an old coop, or house that was used for sick birds and has not been disinfected or the germs killed. But in winter or fall the first case develops from a very bad cold or case of grippe or influenza. Remember that roup is in season at all seasons of the year and can cause you quite a lot of trouble if steps are not taken to check same before it gets any headway.

Cause.

Since the fresh-air poultry house has come into general use all over the country I think this has made quite a change in roup. There are not so many cases where these houses are used as were the old style tight houses was used before. Improper ventilation is a very common cause of roup or colds; of course most cases of roup first come from a bad cold; the glands of the head become affected and run a watery fluid which later on as the disease develops gets thick and purulent and full of bacteria or germs and from this it is scattered through the whole flock. These germs seem to get into the air and as soon as you go into the house where a bird is with roup you can smell the "roupy smell" for many feet off. Often roup is spread by letting the bird with roup drink from the same vessel the well ones do, roosting in the same house and on the same roost and in fact it is very contagious and all precautions should be used to keep the disease from spreading.

Many people have their houses constructed on the fresh-air plan and give their fowls the best of food and care, still they are troubled with this disease and they are unable to trace it as to where it comes from. It is one of the most infectious diseases known and it can be traced to many different origins. Sometimes when you purchase new breeding stock you get it from other breeders' yards. It is also contracted in the show room or from an infected coop or other utensil. It is said that these germs can be carried by the wind for miles while it is in its dry stage and

you are unable to account for it. Also many times fowls will have roup without any indication of a cold, this is more proof that it is a germ disease. These germs live on and in the mucous membrane of the throat and of course they are continually throwing these germs off and as they dry they are carried by the wind and are breathed by well birds and lodge in the throat, nostrils and eyes of well birds and multiply rapidly and before you think what has happened your bird will have a very bad case of roup and you can't possibly account for it.

Symptoms.

At first the bird will seem to have a slight cold, the eyes will water, the nostrils will have a watery discharge, the face will be very hot and feverish but the body will not show any signs of fever and the temperature will be about normal. The liquid that runs from the eyes and nostrils will be thin and watery, later turning a grey color which turns a yellowish color and gets hard. If this cheesy matter stays in the eye it will sometimes cause the eye to go out or move from its socket. The bird seems to want to isolate itself from the rest of the flock and will be found over in the other corner of the building by itself. Its gait will be very unsteady, the feathers will be standing on their ends and the poor bird is certainly a hard looking proposition.

The roof of the mouth or throat will become filled with a hard cheesy matter which will be of a very offensive smell. You can remove these cheesy growth every day and they will be back again by the next day in most cases. Now the bird will be very thin and will not eat anything at all. When the bird first takes sick it will be healthy and in good shape and in two or three days afterwards it will be nothing but skin and bones. Roup will certainly make great changes in a very short time.

When the bird seems to be breathing with great difficulties if you will open the bird's throat and look in you will see that the mouth and throat is nearly closed with the hard cheesy growths and it is the air passing through the throat that causes these loud noises. In some cases the throat will close up from these growths and the bird will then die from suffication.

These growths will also extend into the nostrils and eyes and cause the head and face to swell. In later stages the comb will turn dark, and the bird will be so weak it can not stand alone. Now the bird will not last long unless it is a chronic case, if it is it will live for some time. In these advanced stages you cannot expect a bird to get well at once for there never was a bird with a had case of roup that got well at all. Now if it is a mild case you can possibly cure it so it will never show but where the case is very bad you will never get the bird entirely well. Fowls that seem apparently well at times will show it at other times. They will never he permauently cured. If it takes a least bit of cold roup will appear again. It will also show in chicks that were hatched from "roupy" birds; it may not show until they get abcut grown but it is nearly certain to then. It is not a good idea to breed from a bird that has ever had roup or any other bad disease for it will evedently show in their offspring.

Remember that all colds, grippe and diphtheria are not roup: if the roup smell is not present it is not roup, after you have a case or two to come under your observation you can detect it all right then. These germs seem to poison the whole body of the bird and it will take at least six months to get these germs or bacteria from the system of the bird if you do then. Some claim that it can be cured but I have my first real bad case of roup yet to see that was cured even after twelve months' time. Preventation is always the best cure and is the "cure" or treatment we should use mostly.

Treatment.

Unless the bird is very valuable the best thing to do is to kill it as soon as the disease is recognized; and burn the body immediately. Then begin to clean up the premises thoroughly and try to locate the cause if possible. If you wish to treat the affected birds you must isolate them. It is best to have a pest house just as far away from the rest of the flock as possible to have it. Use a good disinfectant about the house and yards, clean everything thoroughly, remove the old droppings from the boards, clean the old litter from the floor and replace with new,

make new nests, etc., in fact, clean everything that can be cleaned, and do not leave anything undone.

Do not keep sick birds moping around to infect others. You can not expect to get rid of the trouble unless you work with it with determination. It is not a good policy to waste three dollars worth of medicine on a dollar bird. Don't wait for the first case to appear but try to stamp it out as soon as you notice the first symptom. In isolating the sick birds it is better to remove the well birds to new quarters than to remove the sick but leave the affected bird in the old quarters. The quarters occupied by the well fowls should be disinfected well with a good strong disinfectant and place a bucket of water before them to which about one teaspoonful of creolin has been added and do not let them have any other water to drink. Keep the house and yards sanitary at all times and this will be half the battle for if you have them filthy you will have a harder fight to make.

In treating the affected birds you should place them in a dry, well ventilated coop well filled with clean straw and change the bedding every other day so as to keep the coop from getting filthy. Remove the discharge from the nostrils by pressing downward on them. This discharge will become hard after two or three days if allowed to stay there any length of time. You can dry up this discharge by using a 50 per cent solution of creolin and water. Bathe the eyes and face with it twice a day until it dries up. You can also cleanse the parts with dioxygen daily and this will help keep the trouble under headway. Apply the dioxygen until it ceases to foam then apply creolin solution. While using these treatments you must give the bird a one grain pill of quinine every night and morning.

If these yellowish scabs appear in the mouth or throat you can remove them and apply dioxygen to the sores until it ceases to foam , then with a swab apply pure creolin to them. Remove them as long as they appear and treat as directed above. Place a few drops of nux vomica in the bird's drinking water as a tonic for this will help strengthen the bird. Be with the bird as much as possible for if you give it good attention you will get a much better and quicker recovery.

There are many good remedies on the market for roup and I think any of them will give you good satisfaction but I will give you some very common treatments below and I think any of them will give good results. It seems as though every person has his own treatment so below you will find a number of good simple reliable remedies.

With a small blow gun or tube blow boracic acid in the throat and nostrils of the sick bird. Repeat this operation twice a day until the bird is well. This is said to be a sure cure.

Take equal parts of sulphate of iron and Hyposulphite of soda and give each bird affected four grains a day in their drinking water. If the bird is too far gone to drink or eat you will have to feed by hand.

Chlorate of potash 9 parts, permanganate of potassium one part. Place a teaspoonful in a gallon of drinking water for the sick bird. Hightly recommended.

Dr. Wood's favorite roup tablet is Aconite, Bryonia and Spongia Compound. 1-100 grain each. One tablet three times a day. Or if given in drinking water give twelve tablets in each pint of water.

In preventing or treating roup there is nothing better than to take a bucket of water and pour about one-half pint of kerosene in it and dip the heads under and leave there long enough to count four then remove and wipe dry with soft cloth. Repeat this every day until well and do not let them have any water to drink only that which has kerosene in it.

The diet in roup should be simple. Feed plenty of green food and make the mash at least one-half clover. Do not feed any grain but give mash or something that will tempt their appetite for they need it. Feed some mineral matter, a few pieces of meat will be good for them and will tempt their appetites. Watch the bird close and if you do not see any change in three days you should kill and cremate, for it will never be any better. The houses and coops should be thoroughly cleaned and disinfected every second day. Good sanitary quarters are the very best preventatives for roup. See that your house has no draughts in it.

Croup.

Croup may be classed with common colds and they

work very much alike. There is no germ present as in roup. Croup is a catarrhal information of the upper portion of the windpipe. It may be caused from a common cold or by inhaling irritating dust or vapor. Most of the diseases that affect the head, throat and nasal passages originates from filthy and dusty houses. Clean the houses often and avoid this trouble.

Symptoms.

The symptoms of croup are about the same as those with a cold, only the bird breaths with great difficulty; the neck will be stretched far out from the body with mouth open in effort to breath. The comb, face and wattels will be purplish which is a good sign the bird is breathing with difficulty. If you will catch the bird and open its mouth you will soon discover the mucous membrane of the throat to be swollen near the upper part of the windpipe. In most cases there will be a great rattling in the throat when the bird is breathing. The symptoms most generally appear suddenly when the bird seems entirely well. The mouth and throat of tbe bird will be inflamed quite a lot during the attack.

Treatment.

Place the bird in a dry, well ventilated coop well bedded with clean straw. If the bird is breathing with much difficulty you can help it if you will take a woolen cloth and wring it out of icy water and wrap about the throat. After tbe bird seems to be better take an atomiser and make a fifty per cent solution of dioxygen and water and blow into the throat and windpipe. Repeat this several times during a day. A few drops of kerosene will in most cases prove very effective. If after these treatments the bird is no better and is still breathing hard you can give a tablet of Arsenite of antimony 1-1000 of a drug strength each every night and morning until the bird is entirely well.

Another remedy is to take a gallon of water and add a teaspoonful of creolin and boil it and let the bird inhale the steam from the kettle. Let the bird inhale this for ten or fifteen minutes twice a day.

Common Colds.

Fowls that have the best of care are liable to contract

common colds during the winter season when the cold blustry winds are present. These common catarrhal colds will not amount to much if they are begun on in time and not let run on until they develop into something of a more serious nature. Roup, canker etc. are liable to develop from a simple cold if allowed to have its own course. Improper ventilation is a common cause of colds and especially if fowls are allowed to crowd up and become overheated and when they are let out in the morning they contract a cold. If you will use the fresh air poultry house you will not be troubled with cold so much for if fowls are kept in houses that are well ventilated they will not take cold so easy when let out in the morning.

In the fall when there is a cold rain with chilly wind this will cause the birds to contract colds especially young stock. Do not close the houses too tight early in the season but try to keep the birds used to cold weather. Avoid draughts especially while the birds are on the roost; also artificial heat in the poultry house for it is not practical. Sudden atmospheric changes is also a common cause of colds.

Symptoms.

Young stock are more apt to have colds during the fall and winter than old birds. The first symptoms you notice is a few bubbles in the eyes and a watery discharge from the nostrils. The bird will not lose any flesh at all and will eat and seem to be in a healthy condition only for the discharges from the eyes and nostrils. If there is on odor present it is not roup but if there is a bad odor there it is roup instead of colds.

Treatment.

In treating common colds the first thing to do is to try to locate the cause and prevent any further spread of it. Air the house well daily; if you have been in the habit of closing it tight every night do not do it but open the windows and doors and let the birds have plenty of fresh air to breathe. Avoid damp dropping boards by keeping them cleaned every day. Do not allow a draught to pass over the birds while they are on the roost. Keep them housed close and do not let them out until they are entirely well.

For individual treatment there is nothing better than quinine. It will break up a very bad case of cold in from two to four days. As soon as you notice the bird sick remove it to a coop from the rest of the flock and give it a one grain pill of quinine every night and morning until the bird is entirely well. If the watery discharge gets thick and purulent cleanse it out with dioxygen once a day. Aconite bryonia and spongia mixture is another good remedy. Give a teaspoonful of the following in a quart of water, ten drops of the tincture of each in an ounce of alcohol.

Sulphate of iron and hyposulphite of soda equal parts. To each sick bird give four grains a day in a quart of its drinking water. Colds are very easy to handle if taken in time. The best way to do is to remove the cause for there is always something that is causing it. Study everything well and try to locate it if possible.

Diphtheria.

This is another very contagious disease and works very much like roup; there is much difference in opinions as to whether this disease is caused by roup germs or original diphtheria germs. Both work very much and in fact are about the same only in diphtheria the "roupy" smell is not present as in roup. While there is always a bad odor present in diphtheria still it is not like the "roupy" smell and is very easily distinguished from the old "roupy" smell. The two diseases may co-exist and it is very hard to determine just where one leaves off.. We could enter upon a very lengthy discussion of these two diseases and still I do not think it would be of any practical value to the poultryman, so we will not take it up but try to give you information that will help you distinguish the two after a little practical experience.

In general appearance and effects it is about the same as human diphtheria but I do not think it has the same germ, although there are cases on record where fowls contracted diphtheria from children and children from fowls but still I do not think the germs are the same. It will therefore, be understood that it is very contagious and dangerous.

Symptoms.

Dipththeria will strike a bird suddenly, in the morning

the bird will seem perfectly well and in good health, at night it will not eat and appear dumpish and will try to isolate itself from the rest of the flock and will be found over in some dark corner by itself. The feathers will look rough, the wings will be drooped and upon examining the bird you will find a very high fever, the comb will be a bright red and after a day or so it will be a dark color. You frequently find a bird with a piping cough or heavy breathing; this is caused from the mucous that is in the throat. Some cases the mucous will close the throat and cause the bird to die from suffication. If you will examine the throat you will find it red and very much inflamed, later small white speck will appear, on the inside of throat and on the tongue or near the cleft of the palate. These small specks or patches grow very fast and will run together and seem to cover the whole mouth or throat. If you make any attempt to remove these patches you will cause much bleeding and will leave a raw surface. These patches can extend down into the windpipe and cause the bird to die from suffication. They will also get into the eyes and nasal passages and cause swollen face and eyes.

If you remove these patches and they come away without any bleeding and does not leave a raw surface your bird hasn't diphtheria. This is another way to tell it from roup. When diphtheria once gets into your flock it is very hard to break up or overcome. The early symptoms are about the same as those of roup. It will attack turkeys ducks and pigeons as well as chickens.

Treatment.

Remove the bird at once from the rest of the flock. Disinfect well the house, yards, etc., with a good reliable disinfectant, (any of the coal tar products are good) and begin individual treatment, for this is the only satisfactory way to handle this trouble.. With a small blow gun or glass tube blow some powdered sulphur in the bird's throat. Open the mouth so you can see where the inflamation is and get the sulphur right on the raw surfaces Repeat this twice a day, night and morning. If the membrane is yellow and tough it is a good idea to make a swab with a piece of cotton and apply pure creolin to them.

Dixoygen will also be found very good when applied

to the membranes. Apply twice a day and as long as it continues to foam. Mix thoroughly a grain of permanganate of potassium with an ounce of fine powdered sugar and blow this into the bird's throat three times a day. Continue same until the bird is entirely well. I think this will be found a good remedy. It is well to give the bird a good tonic while sick about ten drops of nux vomica in a quart of water will be found good. Feed good wholesome food and some that will be easily digested.

Canker.

This is a disease that will appear in all seasons of the year but is found more during the fall, winter and early spring than at any other time. It usually fastens on the strongest and most vigorous birds in the flock and this is one thing that makes it seem so strange. It is slightly contagious some epidemics more so that others. It is well to isolate all birds affected for you have much better chance to treat them. Canker sores or patches will appear on any part of the mucous membrane of the mouth and will some times appear in the eyes which causes the bird to lose its sight.

Cause.

There has been much discussion as to what causes this disease; it is my opinion that it is some germ which belongs to this certain disease. It is also claimed by good authorities that dusty, mouldy grains and food will cause it. The musty food gets the digestive organs out of condition and the trouble breaks out in the mouth and throat; we know when our stomach gets wrong sores will come in our throat and mouth, so this is very good reasoning I think. After two male birds have been fighting canker will appear, in early stages it is nothing more than pus but it later develpes into a cheesy growth. It may come from an old attack of roup.

Symptoms.

The first symptom you notice is the small patches that appear in the mouth and throat, and you do not notice this as a general thing until the bird shows much difficulty in eating. The neck in some cases especially where the attack is a bad one, will be stiff. These cheesy growths will ap-

pear on any portion of the mucous membrane and sometimes will be on the opening of the windpipe and then there will be much difficulty in breathing. These growths are very tough but can be easily removed with some instrument without much bleeding.

Treatment.

Equal parts of burnt alum and boracic acid applied to canker sores will prove effective in most cases. Apply it several times a day; place the bird in a good dry coop away from the other birds and feed on soft food for a few days. Change the water twice a day. If a few drops of nux vomica or tincture chloride of iron five drops to each pint of water, is added, it will be a good tonic. Dioxygen applied to the sores will destroy the germs or bacteria that are present.

Treating them with the creolin solution will also be found satisfactory. Take a piece of cotton and twist on a small stick and dip in a 50 per cent solution of creolin and water and apply to the canker sores three times a day. While giving these local treatments it will be well to give each bird affected one tablet three times a day until the bird is well, containing 1-1000 of a grain of mercury protiodide. If the bird gets very thin and weak it will be a good idea to kill it for it will not amount to much as a breeder or egg producer any more, even if it gets well for its vitality will be somewhat weakened.

Pip.

Pip is a disease that works on the mucous membrane of the mouth. It is the hardening of the tip of the tongue. The tip will get real hard and scaly. There is some other trouble back of this, for pip is no disease itself but only a symptom of another disease. The general belief is that it is caused by rapid breathing through the mouth instead of the nostrils. The tongue is in a dry state and if you would remove the tip on it you would find it would bleed. Do not remove it but try to soften it and get it back to normal conditions if possible.

Treatment.

In treating this trouble you should study the conditions of the bird and try to locate the trouble that is back of it.

Do not remove the dry tip of the tongue for you will not accomplish any good results if you do. It will harm the bird more than it will do good. If you will paint the tongue with glycerine three times a day it will help the diseased organ to recover its normal conditions. If you notice a bird in your flock pick up a grain of corn and then throw it down again you should make investigation immediately, this is a symptom of pip. To treat a whole flock you can give a tablespoonful of Epsom salts in a quart of water and this will straighten them out alright. Feed the bird on mashes to which some cut clover has been added. A few drops of nux vomica will also be very helpful in restoring the bird to its normal condition again.

Influenza or "Grippe."

This disease will appear in any season of the year and in any climate, it resembles roup very much and may appear with it. It is a very contagious disease and you should use great effort in trying to keep it from spreading as much as possible. Grippe will appear in many forms and one particular one is a roupy cold without the roup odor or smell.

Cause.

This trouble generally appears in winter or fall and it is believed that bad hygiene with unsanitary surroundings, cold winds and anything that will tend to weaken the bird will cause it. It is no doubt caused by a germ which makes it so contagious. When "grippe" breaks out in our families you always notice it will generally go through the entire family before it checks. No doubt it is very contagious.

Symptoms.

The bird generally begins to shiver or tremble first and will sneeze a great deal, as if taking a sudden cold. The eyes will run a watery discharge. There will be a thin greenish diarrohea, the eyes will swell, the comb and legs will be very hot, the throat will be red and inflamed but there will be no patches present. The bird will be very thirsty and the breath may be of a very bad odor but there is no roupy smell present.

Treatment.

Place the bird in a coop away from the other birds

and begin to give it a pill of quinine containing one grain, every night and morning until the bird begins to improve then give only one pill a day. While using quiniue it will be well to cleanse the throat, nostrils, etc. out with dioxygen at least twice a day. A creolin solution will also prove very effective in most cases; about a teaspoonful of creolin in a pint of water. Keep the bird in a well ventilated coop that is free from draughts, have good dry litter and clean every day, do not let it become damp. Feed the bird on good wholesome food and do not let the bird contract another cold for the second attack will appear.

Conjunctivitis or Eye Troubles.

Conjunctivitis is a disease that affects the mucous membrane of the eyes and it is very contagious and is accompanied by the rapid development of cheesy growths which will cause much pain to the bird. It is caused from a germ which originates from musty or mouldy food and litter, exposure to cold winds and rains. Some years ago I was using some chaff from the stable loft as litter in one of my brooders, it was very dusty and perhaps mouldy, before I realized what had taken place the whole bunch of chickens had a very bad case of eye trouble, the eyes were watery which would later get purulent and the lids would adhere to each other. This trouble no doubt was caused by using this dusty litter in the brooder. This trouble can also be caused from some foreign body getting into the eye which causes inflammation to set in. Mild cases will need no medical treatment but will get well spontaneously after the disease has run for several days.

Symptoms.

The first symptom that is noticed is the fowl keeping the eye closed most of the time. It seems as though the light is very painful to the bird. The lids will adhere to each other, the growths will appear beneath the eye you will often see the bird picking or scratching the eye with its toes. On the wings near the shoulder you will find crusts of this yellowish matter from where the bird has been rubbing. The bird will have no appetite in real bad cases and will be thin and dumpish.

Treatment.

Clean the houses and coops thoroughly and keep the

affected birds in clean well aired quarters. Bathe the eye in 25 per cent solution of boracic acid and water, three times a day. If there are any yellowish growths below the eye remove them by gentle pressure; usually after they are removed once they will never appear any more. If this growth is allowed to remain it will likely cause the eye to go out. After removing this growth you should anoint the eyes with the following: A two per cent creolin ointment made with vaseline.

Another good remedy is to bathe the eyes with a 50 per cent solution of dioxygen and water twice a day; dioxygen will destroy all germs that are present. Feed the bird well while convalescent and remember it is much easier to prevent a disease than to cure it. Try to locate the trouble that causes this conjunctivitis or eye trouble.

GAPES.

A Disease that Kills Thousands of Small Chicks Annually and One That Has Been Prevalent Among Poultry For More than 100 Years. Its Cause, Symptoms, and Treatment and How to Prevent It.

Gapes is one of the oldest diseases know to effect poultry and has been prevalent among fowls for more than 100 years. Perhaps there is no other poultry disease that has caused so much trouble or excited as much interest as Gapes. Back in the early part of the Eighteenth Century there was much discussion as to what caused gapes and it was quite a while before they decided it was due to a small gape worm that takes up its abode in the windpipe of the fowl. Gapes most frequently makes its appearance among little chicks but old fowls have been known to have these worms also and they are not exempt from them by any means.

Gapes is strictly a parasitic disease and is caused by a small gape worm which is called Synganus Trachealis. These worms attach themselves to the linings of the windpipe and the severity of the disease is governed by the number of worms that are present. When gapes appear in a flock you will always notice it is in the early spring and in damp weather. A real young chick can not stand the attack as well as other birds. When they are present in large numbers they'll suck the blood from the tissues and cause

much inflammation of the mucous membrane. These parasites vary in size from one-eighth to one-half inch long and the circumferance of their body will be be about the size of a very fine needle. In early stages their bodies are of a very light color but later when they are full of blood they are of a bright red in fact their color is determined by the amout of blood they have taken from the fowl.

When they increase in number they will obstruct the opening of the windpipe and cause the fowl to "gape" for breath and this is where the disease first took its name. In real bad cases the irritation and larger number of worms that are in the throat causes the bird to strangle to death, especially in very young chicks. The worms have very little effect on the older chick or adult bird but they will prove a source of infection for the rest of the flock if allowed to go unmolested.

The worst time for these parasites to appear in a flock of chicks is when they are from one to four weeks old; they are too young then to stand the loss of blood due to these worms. If you open a chick's windpipe after it has died from gapes a number of queer little worms will be found; they seem to have two heads and are shaped very much like the letter Y. This is two worms though, the male and female worm and they are closely united for breeding. While they are in this position the female develops her eggs and the male fertilizes them.

Where Do These Worms Originate?

It is claimed by good authorities that these gape worms originate from the common earth worms and garden slugs; they are eaten by fowls and then while swallowing, some of the eggs or embro gape worms lodge in the throat and windpipe and the disease starts in this manner. Then of course some are passed from the fowl in the droppings and the ground will become contaminated in this manner. After the earth once gets full of them it is a hard matter to get them out any more and the only thing to do is to cultivate the ground and do not let the birds have it for their run for at least two years afterwards.

The female worm does not lay the eggs singly as it would be supposed but will not lay them at all, she will hold them until there are perhaps several thousand then

they are passed from the female worm through some puncture of her body. It is in this manner they are deposited in the drinking vessel and passed from the birds in the droppings to well birds and this is the way the disease spreads. Birds often cough up these eggs and worms for you know a cough is always present with gapes so you see how easy it is to scatter this disease over a lot of ground and hence to healthy chicks.

Many of the embro worms and eggs are eaten but very few of them will find their way into the windpipe and of course they are passed out with the droppings and prove another source of infection, for the well birds, often one single worm will cause you a whole lot of trouble and cause the entire flock to become infested with gapes. Gapes will appear among wild birds as well as domestic and it is thought that while they are flying over your poultry yard they will expell their droppings and in this manner your entire flock will become infested with this deadly disease.

Symptoms.

You rarely ever know your chicks have gapes until you notice some of them gaping, and sometimes a slight cough will be present in the early stages of the attack. There is great difficulty in swallowing, breathing, etc. The bird will be weak and will not be able to follow the rest of the flock; the wings will be drooped and a slight discharge of mucous and worms in some of the worst cases. The symptoms of gapes is very much like bronchitis and pneumonia and to make sure you are right before you begin treating the birds it is well to make a post-mortem examination by cutting the windpipe lengthwise and examining the linings of the windpipe thoroughly and if there are worms present they will be seen easily with a magnifying glass. In gapes there is not fever but in the above diseases there is always a fever present.

Treatment.

When gapes first makes its appearance in a flock the best thing to do is to remove all birds affected from the other birds and place them in coops by themselves. Take a gallon of water and add one teaspoonful of creolin and

this will be a good preventative and will cure some of the worst cases. A bad case of gapes came under my observation a few years ago and as an experiment I gave it some water to which a few drops of creolin had been added and in a few days the chick was well and free from gapes. And this proved to me that creolin was one of the best drugs to use in treating and preventing gapes. A strong creolin solution will also make a good disinfectant to use in the yards where they have been running. Spray the entire surface of the yard with it and then scatter some air slacked lime over it. If you have no sprayer take a good sprinkler and use instead. Still better if you can do it, is to move every bird old and young from the old run and have a new one ready for them and plow the old run up and plant in something so you can cultivate it for about two years. This is the only safe way to get the gape worms or germs out of the ground. They will stay in the ground for years if nothing is done to exterminate them.

Air the brooders and coops daily and do not let them roost on the ground or anywhere, where it is damp. Wash all drinking vessels out daily with scalding water and place a few drops of carbolic acid in them. Burn all birds that die and all worms that have been extracted from their windpipes. Spray the yard at least twice a week with the two per cent creolin solution and use all effort to try to keep the trouble under headway. If you remove the birds to new runs and place a few drops of creolin in their drinking water I think you will be able to handle the disease all right. A small piece of copperas in the drinking water is said to be a good preventative by good authorities.

Some Simple Means of Removing the Worms.

There are many simple ways to get the worms out of the bird's windpipe and we all know we must get them away in order to affect a cure. Lime dust is a very simple and sure remedy and no doubt one of the most satisfactory. Make a box as large as you want to and place your chicks in it and place a piece of burlap over it and sift air slacked lime over the chicks and this will make them cough up the worms. The lime irritates the linings of the windpipe and also some of the finer tubes of the chest and its use is followed by much coughing and sneezing which dislocates

the worms and cause them to be coughed up. Do not let the chicks stay in the box long enough to kill them, you can regulate the time by your own judgment. Plenty of fresh air must be supplied while they are undergoing the treatment or else you will kill them or cause a serious inflammation of the mucous membrane of the throat and windpipe.

Another good way to extract the gape worms from the windpipe is by using a horse hair, wire gape worm extracter or a feather. This is done by placing them in the windpipe and with a little twisting turn draw it out. The object being is to detach the worms and draw them out. It is well to dip the extracter into creolin solution before and after it has been used. In treating birds in this manner the operator should sit in a comfortable position where he has a good light and everything he needs in reach of him. Have one box for the chickens that have never been treated and one for the ones that he has treated. Be steady and keep your head, you may kill several at first but you will soon get onto it and be able to treat them with ease and surity.

By having a split bottom basket and placing the chicks in it, and by swinging it through sulphur fumes several times you can kill the gape worms in this manner, but be careful and do not over do it.

The camphor remedy is also good. Catch each bird affected and place a piece of camphor down its throat about the size of a grain of wheat and you will have no more gape worms, it is certainly a good satisfactory cure.

Scatter plenty of air slacked lime over your runs and you will find this a good preventative for this dreaded disease. If you will keep the chicks in disinfected runs until they get three months old you can let them have more liberty for the most of the danger is over then. Keep the coops dry and sanitary and do not let them get filthy; keep your chicks roosting on boards this will also help prevent the trouble. Every little thing you can do will help keep this dread disease under headway. Remember it is always much easier to prevent disease than it is to cure it.

Apoplexy.

As a general thing this disease appears in pullets that are too fat, although it will affect old hens and male birds.

to some extent but nothing like the former. Apoplexy is the result of a ruptured blood vessel of the brain and the pressure of blood which escapes from same. The main cause of the trouble is caused from feeding stimulating foods in too large quantities and the result is over fat birds. Pullets in laying their first eggs will some times strain and in doing this they will rupture a blood vessel of the brain and the result is you find them on the nest dead. They are too fat to stand any strain for this fatty degeneration weakens the walls of the arteries which can not resist the pressure. Birds will sometimes die while on the roost, or they will drop dead while in the yard but as a general thing there must be some over exertion to cause the rupture of the blood vessel. Fowls that have been chased around the yard will sometimes fall its prey; the increased action of the heart causes the blood to flow to the brain and the rupture is the result.

Symptoms.

The bird is generally dead before you suspect anything wrong with it. But cases have come under my observation of late where a pullet or hen would go on the nest to lay and while straining trying to expel the egg their comb would be dark and purple and before it was a bright red. This is a good symptom of Apoplexy and you should begin to work on them. Also after running a bird if the comb gets dark or purple you should make investigation immediately. If the bird seems to be in an over fat condition and stands around with the wings drooped you should begin at once to locate the trouble.

Treatment.

Very little can be done for birds with this trouble; the best treatment is preventation. Do not let your birds get into this overfat condition, feed foods that have not such stimulating qualities and make your birds exercise after all the food they get. Do not feed corn or cornmeal in large quantities if you do an over fat condition is sure to appear and apoplexy will result.

If you wish to treat the bird the best thing that can be done is to apply ice to the head or cold water, for it is very important to keep it cool. A laxative such as castor oil or olive oil should be given the bird if it can be made

to swallow it. Bleeding the bird will help it in some cases, this can be done with a sharp knife by opening the blood vessel on the under side of the wing. Let two to two and one-half teaspoonfuls of blood flow before allowing it to clot. This will reduce the pressure of the vessels. Provide some protection for the bird from the heat and keep in a cool coop until entirely well; and remember apoplexy is much easier prevented than it is cured. There are not many cases where they were entirely cured.

Congestion of the Brain.

Congestion of the brain is not a common disease by any means but still there are a lot of poultrymen that are troubled with it. It is generally found where birds are in an over fat condition just like apoplexy. In the summer while the rays of the sun is at its best you will also find it occasionally. Congestion of the brain and fits work very much alike and worms may be another common cause. By post-mortem examination you can detect the intestinal worms if they are present. When you find a bird with this trouble you usually find convulsions, giddiness, and uncertainty in walking. The bird will throw its head back or forwards and this symptom is very much like limber neck. Nothing can be done for such cases only preventation. If you wish to treat the bird use cold application to the head and keep it in as cool a place as possible where the heat can not effect it.

LIMBERNECK

A Disease that is not Contagious as Most People Think—It is Simply a Symptom of Another Disease—Its Cause, Symptoms and Treatment.

Most people who have had any experience with limberneck think that it is very contagious after it once breaks out in a flock. They have the wrong idea of it and it is not contagious at all. It is no disease only a symptom of some other disease or trouble. Limberneck is caused by the birds eating some decayed body or flesh. It is ptomaine poisoning. We have always noticed that limberneck will break out during the hot summer months; while the weeds are high and thick one of the hens happen to die and there

she lies until she is eaten up by other members of the flock. She is full of maggots in a few days and the birds eat them and the result is ptomaine poisoning. Some good authorities claim that any kind of maggots will cause limberneck and it looks like they would but I cannot think it for all maggots are not full of poison and it is the poison and not the maggots that cause the trouble.

It is a hard matter to locate the dead carcass where the flock has free range and especially farm flocks. You might find one or two and still there would be another in some secluded place where you would not dream of looking and still you would lose a lot of your birds by them eating it. When the trouble breaks out the best thing to do is to place the entire flock in yards and keep them there until you know the dead carcasses have had time to decay and leave.

Limberneck is common to all parts of the country and the name certainly does describe the condition they are in for their necks are limber sure; and it is very easily recognized by the muscles of the neck being partially paralyzed. And this no doubt is where the trouble first took its name. Feeding meats that are full of maggots, and other poisonous foods that are indigestible have been known to cause bad cases of limberneck.

Symptoms.

The bird will stand in a stupid position and will have no energy to move about and follow the rest of the flock but will try to isolate itself in some dark corner and hold its neck in an arched position with the crown of its head resting on the ground between its feet. They will also have convulsions and twist their neck in many different positions and the neck is surely limber as the name implies. cases instead of the neck hanging down between the feet it will throw it back and the bird's head will rest nearly on its back and twists nearly around; this is known as "wry-neck."

Treatment.

As soon as you find the diseased bird give any medicine you have or anything else that will counteract the poison. Give a small dose of oil of turpentine and sweet oil equal parts will be found very good in throwing off the

poison; in about thirty or forty minutes after you give the turpentine and oil give the bird all the sweet milk it will drink, a little ginger added to the milk will be good also. Keep the bird in a warm dry coop and in from twelve to twenty-four hours the bird will show much improvement and will be ready to be turned out and given the same rations as before, feed plenty of green food and ten drops of nux vomica in a quart if drinking water will be found helpful as a tonic after a few days. Hyposulphite of soda one ounce to each gallon of drinking water will be good for the flock or some cases that are not of a serious nature; allow no other drink until the trouble is gone.

Search the premises thoroughly for any dead and decayed bodies thtat are full of maggots. If your flock has free range it would be well to keep them confined in small yards for a week or ten days so that the decayed flesh can disappear. Cut all weeds about the place and see if the cause can be found. Limberneck will never amount to much if it is taken into hands at once after the first case appears.

Another remedy for this trouble is to take equal parts of pure lard, mustard, cayenne pepper and ginger and mix thoroughly and make out into slugs about the size of a bean aud give one for a dose and repeat in three hours if necessary. This is an old remedy and is a sure remedy to counteract the poison. Also if pure lard is melted up and a tablespoonful is poured down the bird it will in most cases effect a cure. Remember that limberneck is not contagious by any means and can be stamped out readily if taken in hands at once and the cause removed.

THE COMB.

Its Diseases and Injuries—With Cause, Symptoms and Treatment.

The comb of a bird is very helpful to the poultry keeper in determining the condition it is in for just as soon as the bird gets the least bit out of condition the comb will show it immediately. This is about the only way we have to determine the bird's condition, and it is about the same in the human patient the physician has the tongue instead.

There are no diseases of the comb and they are only symptoms of some other disease that the bird has. Always remember that when the comb of a bird gets pale or purple there is always some other disturbance in the body that is causing it. We very often notice the tips of the comb getting purple, in this case the disturbance is only slight but when the comb and wattles get dark, the trouble is very serious and something should be done immediately for the trouble will no doubt be fatal if nothing is done.

We all realize what color combs our birds should possess and to get this bright red color we must give them the best of attention, food, etc., or else these symptoms may appear. We can prevent most any poultry diseases if we have a mind to do so; proper care, food, and housing are all that is needed to keep the birds in a healthy condition. Remember that the comb is always the first place to show any disturbances of the organs of the bird's body.

Black Rot.

The name of this disease itself really tells the whole story. The comb turns black and the tissues seem to be dead and the diseased parts will rot off or become separated in time from the rest of the comb and leaves a very unsightly stump as when the comb has been frosted. Black rot is found only in high combed breeds, only rare cases of black rot in birds that have low combs. The cause of this trouble is due from improper circulation of blood through the comb which causes the tissues to become dead. Most every case of black rot will be caused from some kind of liver trouble. Every time the liver gets out of order the comb will show it and tells the whole story.

Symptoms.

In the early stages of black rot the comb will be just a little dark; generally the points become pale or purplish, and in a few days the whole comb will become dark. Cases where the bird is in a healthy condition and with strong vitality the diseased portion of the comb will separate from the other and fall off leaving a stump. The color changes from a purple to a blue and then to black. The bird will not have much appetite and will stand around in a stupid position and will have very little energy.

Treatment.

Just as soon as you notice a bird of your flock with a dark comb you should catch it at once and place in a coop and begin immediate treatment for in advanced stages of black rot treatment is of little value then and nothing can be done. Feed plenty of green food and do not give stimulants; see that the bird has plenty of sunlight and fresh air. Paint the comb three times a day with the following lotion: Water one ounce, glycerine three-fourths of an ounce, and carbolic acid crystals one grain. Now add one teaspoonful of muriate of ammonia to each pint of the drinking water this will help the liver perform its duties more easily.

Phosphate of soda is also said to be good; give the sick bird one-half teaspoonful daily. Now the treatment of black rot will be of little value as I said above but the proper way to begin treatment is to locate the cause underlying the trouble and try to prevent any more cases from appearing and deal with the old cases the best way you can. Mild cases can be cured if taken in time but advanced cases treatment will not do much good.

Favus (White Comb.)

We hardly ever meet this disease in the poultry yard although it is very contagious and as soon as it makes its appearance in a flock it should be stamped out immediately by all means. Favus (white comb) is a skin disease of germ origin. Birds that have free range rarely have this trouble unless they have been exposed to it by coming in contact with other birds that had it. The cause of favus is lack of green food, sunshine and exercise. Keep your houses closed up tight during the winter months when the fowls are compelled to stay in and you will have favus. Close air is the main cause.

Symptoms.

The first symptom is the coming of little white or redish pimples on the face and comb; they are nearly always of a whitish color when first noticed but later turn redish. When first noticed they are under the skin and are higher at the circumferance than at the center. They will vary in size from a pin head to one-half inch in diameter. These pimples will appear on the comb, wattles, ear

lobes and on the crest of the head, then after several days' time they will cover the entire body of the bird, but only in very severe cases. These pimples will break and the watery fluid will run over the surface and drys which gives the skin a white appearance, as the bird moves around this will break it and it will fall off and look like wheat bran. In bad cases the feather will fall out and this gives the bird a very bad appearance indeed.

Treatment.

Rub the affected parts with carbolated vaseline and give the bird a few drops of nux vomica or tincture chloride of iron 20 to 30 drops in a gallon of drinking water. If possible give the bird free range where it can get plenty of green food and exercise. Do not keep the birds under such unhygenic conditions. Disinfect and ventilate the houses well and do not crowd them in small tight houses for you cannot expect to keep them healthy if kept in such traps. The cause of this trouble should suggest a cure.

FUNGOID.

While fungoid is not a very common disease still it is one of the worst diseases to handle after it once gets a started in a flock of birds. It is very contagious and can be passed from bird to bird. If no means are taken to prevent its spread it will soon run through your whole flock and will cause great loss. It usually breaks out in flocks that have been fed on food that is rich in starch elements and especially flocks that are low in vitality. Fungoid will not go through a flock of "run down" birds that are low in vitality as fast as one that is healthy and vigorous. It is a local rather than a general disease, and the whole force of the disease seems to show itself in the comb and wattles but in bad cases the disesase will spread over the whole body; but in most cases the comb and wattles are the only places it is noticed.

The first you notice of the disease is the appearance of the small shot like substances under the skin and they feel hard like shot at first and you could hardly distinguish them. Later as the disease advances these small substances will flaten and burst through the skin and a discharge will flow through the punctures of a straw color. In about three days after this crop comes and goes there

will be another one come and crop after crop of these pimples will appear. This discharge will dry on the surface of the skin and cause the bird much pain from irritation and it will be found trying to scratch its comb and face with its claws. Bleeding will follow this if something is not done to prevent it. The bird is now a bad looking prospect indeed and no lover of poultry would care to look at the poor unfortunate bird.

Treatment.

Do not let the well birds run with those affected but isolate them at once. Place the sick bird in a light coop well bedded with clean straw and change every other day. Wash the comb and wattles with a 50 per cent solution of dioxygen and water night and morning and then apply a solution of carbolic acid crystals and water, five grains to a pint of water. If after a week's treatment the bird does not show any improvement it is well to kill it and bury it for it will never amount to very much even if it should be well in a year, for it will always be weak and have low vitality and unfit for breeding purposes. To keep the bird from scratching the comb and affected parts tie the legs to gether with a string just lose enough to allow it to walk and stand but not so it can scratch itself.

Feed the bird on good stimulating food and something that will tempt its appetite for the bird will be weak and thin and will not have very much appetite. A little nux vomica in the bird's drinking water say about ten drops in a quart of water will be a good tonic for the sick bird.

FROST-BITE.

I think most every poultryman has had more or less experience with this trouble and I think very little can be said about it only prevent it by keeping your birds in warm, well ventilated houses. Some think that if they make the house air tight it will be warmer but this is all a mistake for if the fowls have no fresh air to breath they can not possibly stand the cold. Low vitality in birds and not enough food will cause frost-bite more and in a worse form. A bird that is in a good healthy condition and has enough food in its crop to do until morning will stand a

great deal more cold than a bird with low vitality and no food, can.

Of course the taller and thinner the comb is the more easily it will freeze when exposed to cold weather. When the temperature drops thirty to forty degrees in a single night we can not well prevent this from happening but if we provide warm houses and plenty of good food for the birds frost bites will not bother us very much. The best house and the best care will not prevent this some times.

Treatment.

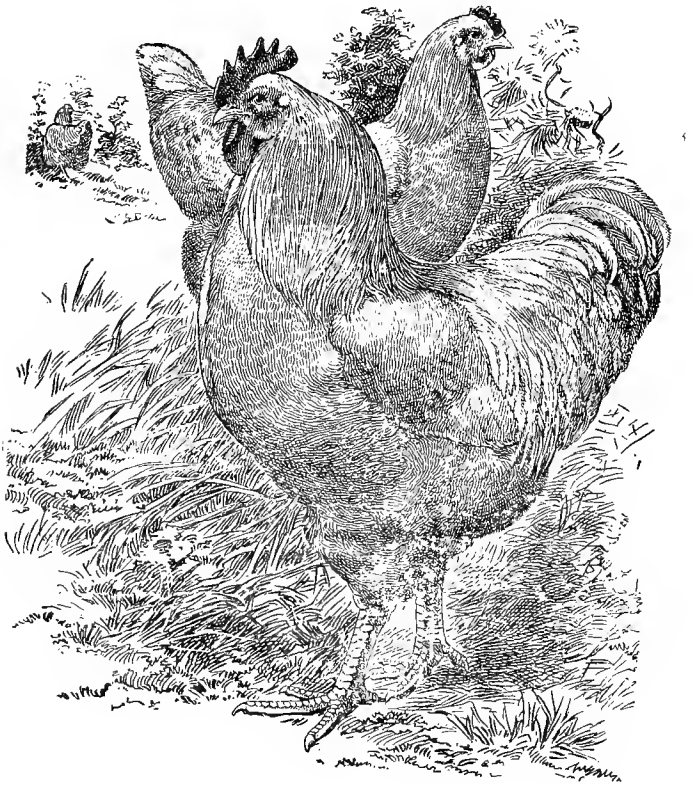
In treating a frost-bite do not try to thaw it out all at once for you are doing the wrong thing when you do. If you can get snow at the time you can apply this to the frosted parts and draw out the frost; this can not be done in a few minutes either but it will take hours of work to bring the frost out. Nothing can be done to save a right bad frozen comb, for after it has become black or purple you can do nothing, but you might try and may be able to lose only the points. Do not take the bird in a warm room or in the sunlight but let the bird stay where it will warm up gradually. If the comb is swollen and there are water blisters on it open them with a fine needle and allow the water to run out; and apply witchhazel salve to it. Apply tincture of benzoin locally twice a day will be found good. One ounce of vaseline, one-half ounce of quinine and two ounces of kerosene well mixed and rubbed on the comb and wattles will be found satisfactory if applied as soon as found. The point is not to let the frosted parts run for a day or two and then begin treatment but begin as soon as found, and you will likely save most of the comb.

INJURIES.

The comb may be injured in many ways, fighting, or from getting caught in the wire fence or lath partition dividing the house and yards, all are common causes. As soon as you notice the bird's comb injured remove it from the rest of the flock for they have a tendency to pick at the blood and this may grow into a very bad habit. If you will take a fine needle and white silk thread or cat gut you can stitch up the wound and with a little pains it will grow back and will be hardly noticable.

Keep the bird in a coop by itself until the parts are

thoroughly healed and you will prevent the birds from picking at it and causing it to heal slowly. If the comb is slow in healing apply vaseline to the parts.



CHAPTER V.

THE LUNGS.

The Diseases of the Lungs—With Their Causes, Symptoms and Treatment.

There are five diseases that affect the lungs, consumption, bronchitis, pneumonia, tuberculosis and congestion of the lungs. The later disease is simply the early stages of pneumonia and if allowed to run on without prompt treatment the result will be a very bad attack of pneumonia. These different diseases are not passed from one bird to another but it is best to isolate all birds so as to give better attention. It is well to separate all sick birds from well ones even if they have no contagious disease.

Consumption.

Consumption in most cases is simply an aftermath of roup. It is not at all contagious but appears in individual cases as in the human family. This disease rarely ever appears in strong healthy birds but flocks that are low in vitality and from weak ancestors often fall the prey of consumption. The nature of this dreaded disease is well known. We know it is the wasting away of the lung tissues, and the general health of the whole bird, just as in the human family. It is a disease that should be shunned as much as possible. If your birds seem weak and with little vitality it is best to dispose of them and replace with others for fear this trouble might break out in your flock.

Symptoms.

In the early stages of the disease the only symptom you notice is simply weakness without any cause whatever.

In the course of a week or ten days you will notice some difficulty in breathing especially if the bird is chased over the yard a few times. There will be a rattling sound as in bronchitis. While on the roost there will also be some roughness of respiration. At this time the bird may be laying and seem in very good health only a slight weakness but after a month or so the bird will be very thin and "wasting away." The comb will be pale, and there will be a slight diarrhoea and the food will not be digested properly and will pass from the bird in about the same state as it was when eaten. The rattling in the throat will be somewhat louder and if you go into your house at night after the birds are on the roost you will wonder what is in the bird's throat to affect the respiration in that way.

Treatment.

The best and safest treatment is to use the "hatchet" and cremate the birds killed. In this way you might prevent any other spread of the disease and otherwise you would cause your whole flock to become contaminated with this dreadful disease. If many cases break out in your flock it will be well to dispose of all birds on the place and get a new start for they are very low in vitality and will never be found successful as breeders. I do not believe any case of consumption can be cured especially after it gets into the advanced stages.

Bronchitis.

Bronchitis is an inflammation of the membranes of the bronchical tubes instead of the nostrils and head passages as some think. This disease can be of a light stage or very serious one. Some cases will not be anything more than a simple cold while still another one will be as severe as the worst attack of roup. Bronchitis is nothing more than catarrh only bronchitis affects the breathing tubes while catarrh is an inflammation of the nostrils and head.

It is caused from exposing the bird to cold winds and storms, sudden changes in the temperature and damp quarters, etc., At certain times I have had good reason to believe that bronchitis can be caused from breathing foul and impure air. I have known cases where there were no other cause. Particles of lime or dust will also cause this

trouble. Bronchitis will some times affect small chicks after they have been exposed to rains, or overheated brooders.

Symptoms.

Tnis disease is not noticed until it has a few days' start of you. If you are a close observer of your birds you may be able to notice it. At first the bird will be very thirsty and the body and legs will be very hot and with a high fever. The comb will be a bright red and quite warm. There will be a rattling sound in the throat or bronchical tubes caused from the mucous that is present in the bronchical tubes which affects the breathing. In early stages of the disease there is a wheezing sound, later there is a rattling as the mucous increases.

Treatment.

Remove the bird from its mates and place in a warm well ventilated coop bedded with good clean straw. Keep the coop clean and in a sanitary condition at all times. Give it 20 drops of tincture of Aconite in each quart of the drinking water and allow no other drink for a week or until the bird is nearly well. In very mild cases this will be the only treatment necessary. If the cough or rattling does not stop try the following: Get some tablets of Arsenite of Antimony 1-1000 of a drug strength each and give one three times a day to the sick bird until well.

Other remedies for bronchitis are spirits of turpentine ten drops in a teaspoonful of castor oil every five hours until relieved. Flaxseed tea is also good and is nourishing.

Feed the sick bird a warm crumbly mixture of beaten egg, bread crumbs and oatmeal, just what it will clean up and no more. Beef juice will also be found good if the bird is very weak. Keep charcoal and grit before it also.

Try to prevent any more cases from appearing in your flock by going to the bottom of every thing and finding the cause. It is easier to prevent a poultry disease than it is to cure it. And in preventing them you do not take any chances of losing your best birds. In treating this disease you will find it will respond very well to medical treatment, and is very easily handled.

Congestion of the Lungs.

This trouble is caused by sudden chilling or most any kind of exposure to the fowls. The name describes their condition. We very often find a case of congested lungs late in the fall when the bird is slow to get through moulting. They haven't enough feathers on their bodies to protect them from the sudden change of the weather.

Symptoms.

The bird will stand around on one foot and will have no energy to move about and will refuse to eat. The comb will turn black or dark and there will be a bloody discharge from the mouth which is of a mucous nature. If you make a post-mortem examination you will discover the lungs full of blood and will look very unnatural. Before you realize what has taken place the bird will be dead and there will be no warning unless you are a very close observer of your flock. Some cases you will notice some difficulty in breathing.

Treatment.

You should give all your thought in preventing any new cases for nothing can be done for the sick birds as they are generally dead before you realize what has taken place. See that your birds have good, dry comfortable quarters especially those that are just moulting. Feed good pure food and give them plenty of animal food while the birds are going through their moult.

If you will give the sick bird one drop of the tincture of the amorphous aconitine every two hours you may be able to save the bird, especially if taken in its early stages. Do not give large doses once or twice a day rather than small ones every two hours for you get better results from the latter. The best treatment for congestion of the lungs is preventation for no medical treatment will be found satisfactory. Remember to keep the bird in a room with an average temperature of 70 degrees.

Pneumonia.

Pneumonia is simply a second attack of congestion of the lungs. This is an inflammation of a catarrhal nature affecting the air cells of the lungs. This is generally a very quick death and they usually pass away in a day

or two after they reach this stage. Most cases of pneumonia prove fatal. The symptoms are about the same as those of congestion of the lungs. If you place the ear to the chest you will readily hear the cracking sound as the bird breathes. The bird may even pant for breath as in the summer. The bird will often sit in a squatting position with the wings drooped, and no energy to move about.

Treatment.

As soon as you discover the trouble remove the bird at once to a room with a uniform temperature of about 70 degrees. Supply an abundance of pure fresh air to breathe, have the coop bedded with clean straw and keep it in a sanitary condition at all times. Use ten drops each of aconite and bryonia to each pint of drinking water and allow no other drink until the bird is pretty well recovered from the attack, or give one drop of tincture of amorphous aconitine every two hours. Another good remedy is to make capsules containing one grain of sulphocarbolate of zinc and make the bird swallow one night and morning.

In treating birds with pneumonia you have to be with them quite a lot so as to give them the medicine regular together with good attention. It must also be prompt and active, as the disease is very rapid and will soon carry the bird away in some cases even if you do give the bird prompt treatment.

Keep the strength of the bird up as much as possible by giving beef juice or eggs beaten up together with fresh sweet milk and bread added. Do not give too much but feed lightly for several days.

Tuberculosis

Tuberculosis is not a common disease among poultry of this country, but still we find some few cases of it among the different flocks. It is much more rapid than consumption and will soon cause the bird to wear away, or "going light" as some express it. As soon as we find a bird of this kind in our flock it is best to kill the diseased bird at once and cremate it for fear if it is buried it will be scratched up by some dog or cat and hence cause the rest of the flock to become exposed to it.

Tuberculosis is a disease that we should do all in our

power to exterminate. We all know what it is doing for the human race and up to a few years ago they were not doing anything to check its spread but since they have made great strides to check and fight this dreaded disease. We have known birds to catch it from tuberculosis cows and you should watch such in order to keep down its spread. There is a germ-bacillus present in all cases of tuberculosis and from this is where the disease spreads. The only symptom that is present in tuberculosis is the bird "going light" and some cases the bird will be so weak it can not walk more than half a dozen steps before it is completely exhausted. There will also be a slight cough with it and a little difficulty in breathing.

Treatment.

It will not pay you to treat birds with tuberculosis, for even if you could "patch them up" so they looked good, you would not want to breed from such birds and have them passing these germs down to their offspring and in a few years have your whole flock a diseased one, would you? It is best by all means to kill the bird as soon as you discover it is going light and you suspect tuberculosis. Cremate it and you have it out of the way.

Begin then to clean up everything about the yard and houses. Dust the inside of the house thoroughly and get all cobwebs out of the corners and spray well with a strong solution of carbolic acid and water. If you have a spray pump you can get into every crack and crevice. Cultivate the yards and if possible remove the other (well) birds from the old quarters and give them new ones.

If you wish to treat any of the sick birds you can place them in a coop far away from the rest of the flock and give them as a tonic arsenate of iron in pill form 1-50 grain each night and morning. Cod liver oil will also be found good to give in mash and will help nourish the bird.

It is not at all a good idea to treat a bird with this dreaded disease for you are likely to have the other birds exposed to it while doing so and will endanger them. Kill all birds affected and be on the safe side.

CHAPTER VI.

THE CROP AND INTESTINES.

The Cause, Symptoms and Treatment of all Diseases Known to Affect the Crop and Intestines, I ncluding Diarrhoeas and Cholera, with Reliable Remedies.

Enteritis.

Enteritis is caused by bacteria which get into the intestines and causes great inflammation. This is a very common disease among poultry and it is often mistaken for cholera. Enteritis will also follow neglected cases of diarrhoea. Foul drinking water, uncleanliness, filthy and rotton food will also cause this trouble. As the disease develops the excrement will be a greenish color and there is always more or less looseness of the bowels. In the early stages the comb will only be a little pale, later turning purple and very dark. Where the different varieties of bacteria are present in large numbers there will be some blood in the excrement. The bird has very little energy to move from place to place and will appear to be in a sleepy condition at all times. The bird will not eat and the crop will be full of food and water. In some cases if you hold the bird by the feet head down the water will run out of the crop. If you make a post-morten examination you will find the intestines full of mucous and the liver enlarged.

Treatment.

Isolate all sick birds at once and try to prevent any more cases by giving pure food and water. Enteritis is very contagious and should be handled very carefully at all times. Wash out all drinking fountains with scalding water and begin at once to clean the house and give it

a good disinfecting. Give the sick birds a teaspoonful of olive oil three times a day until you see a change in them then give only once a day. Feed the bird on bread soaked in milk and give sweet milk to drink. If you will give the sick bird one-tenth of a grain tablet of calomel three times a day this will also be found very good and will help to effect a speedy cure. Give only pure fresh water and food at all times.

Common Diarrhoea.

Common diarrhoea may be caused from many causes but the most common of these are: Feeding too much loosening foods such as bran, green bone, etc., too much food or drink after fasting, long journey, want of shade in hot weather, vermin and over crowding. This is also often mistaken for cholera by many. Excrement may be of a whittish, greenish or yellowish color and from investigations there is no bacteria present in the excrement. Therefore it is not contagious. The birds are often very weak.

Treatment.

All the treatment that is needed in these cases is to correct the diet, give only pure food and water in clean drinking and food dishes that have been scalded out. If you will give the bird a teaspoonful of castor oil this will help clean the digestive organs out. Keep charcoal before the sick bird at all times and try to locate the cause and remove it and you will have no further trouble. Sweet milk will be found very good for mixing the mash with. Feed very light for a few days and then do not feed grains that have coarse hulls on them.

Diarrhoea Caused from Poisons.

Diarrhoea will often result from birds eating paint, skins, salty meat, unslacked lime, white lead, lye, and rough-on-rats. Poisons from paint are very common especially where the painter has been and has left some paint buckets out and let it rain in them; the birds drink this water that has stood in these buckets and poison followed by diarrhoea is the result. Paris Green and other spray mixtures will cause it also. The symptoms of this trouble are as follows: Convulsions, diarrhoea with

streaks of blood, watery discharge from mouth and nostrils, weakness with a great desire to sleep.

Treatment.

As soon as you discover that your birds have eaten this poison you should begin at once to pour eggs down them or give flax seed tea in large quantities. Later give sweet milk all they will drink. You seldom notice this trouble until it is too late to administer any thing. Prevent it by keeping all poisons out of their reach.

Gastritis.

This disease is often met in connection with inflammation of the crop. It is the enlargement of the food passage just before it reaches the gizzard. Eating mouldy or poisonous foods, too much forcing for egg production together with condiments is the principal cause of Gastritis. The mucous lining is very much inflamed and red and the blood vessels enlarged. The bird will have no appetite, the temperature will be high together with general weakness and diarrhoea one day and constipation the next.

Treatment.

Give boiled rice water to drink, and do not let the irritating cause continue its work, but check it at once. Give castor oil until the bowels operate freely and then use bicarbonate of soda, twenty-five grains in a quart of water. Feed very light on soft mashes, mixing same with water which has been poured over cut clover the night before and feed some meat food.

Dysentery.

Dysentery is a neglected case of diarrhoea, (or a chronic case as you may call it) running into deep inflammation. Some cases it is a disease by itself originating from a filthy condition of the house and yard. Filthiness in food and water will bring on looseness of the bowels and this if not checked will develop into dysentery. Filthy water, improper ventilation, bad food are all common causes of dysentery. The symptoms are as follows: The bird shows great weakness, and at times can hardly

stand alone and will still continue to grow weaker until they fall off their feet. There is always a looseness of the bowels, the discharge will be thin and watery and if inflammation is very great there will be streaks of blood in the excrement.

Treatment.

Place one ounce of sulpho-carbolate of zinc in a half gallon of water for the sick fowls to drink. Do not allow them any other drink for five or six days at least. And remember that the diet of all birds must be nonirritating. Feed very lightly for a few days on course food: wheat middlings rather than bran. Epsom salts if placed in the drinking water will also be found good in affecting a speedy cure.

Mould.

Mould is a trouble something like "going light." Some people think that any kind of food is good enough for their birds and they buy musty burned wheat, etc., for them and the result, is after feeding this kind of food a while, will be mould. Mould will also be caused by inhaling dust from mouldy straw, hay, etc. The symptoms of mould are indicated by lack of ambition, the bird will separate itself from the rest of the flock, will have no appetite and there is always a catarrhal discharge from the nostrils, with a rattling in the throat and great difficulty in breathing. It will be nothing but skin and bones.

Treatment.

As soon as you discover a case of mould in your flock you should kill the bird at once and cremate it. Practically nothing can be done. The only thing that can be done is to cut out all mouldy food and give nothing but good sound food with pure fresh water. Preventation is the best remedy. If you wish to treat the bird give one grain tablet of quinine three times a day.

Cholera.

One of the Oldest Diseases Known to Affect Poultry and One that most Every Person is Familiar with. Its Cause, Symptoms and Reliable Remedies.

This is one of the oldest diseases known to affect poultry, and it is very common in all sections of the coun-

try to misuame all bad cases of bowel trouble, indigestion, diarrhoeas, etc., cholera; more especially those in which the excrement is of a greenish color. This is a reason many think cholera is a very common disease. Cholera is not a very common occurrence, and seldom attacks domestic fowls if they are kept under reasonably sanitary conditions. Cholera usually runs a very rapid course, the bird being apparently well in the morning, sick at night and dead in a day or two. It attacks all varieties of domestic fowls. And has been known to affect wild birds that were inhabiting an infected district. When cholera makes it appearance in flocks that have free range, it is almost impossible to control it; but where fowls are kept in close confinement the trouble can be readily stamped out if prompt measures are taken as soon as it is first noticed. Just as soon as you find you have a case of cholera in your flock you should begin at once to prevent any further spread of it.

Cause.

The infection is nearly always introduced with food or water, which has come in contact at some time with some of the excrement of a diseased bird. The blood and raw flesh of diseased birds if eaten by well ones will transmit the disease to the well birds. If well birds come in contact with diseased birds they will also have it. It seems the air gets full of the cholera bacteria and it will light down on your flock and you can not account for it. Still your neighbors' birds have cholera several miles away. In the first place I think the real cause of cholera is caused from filthy quarters, improper ventilation during warm weather and drinking stagnant water. Often cholera is introduced into your flock by the purchase of an infected bird.

Symptoms.

The first symptoms of cholera is usually a light diarrhoea; the bird shows a lack of life and spirit, moping around half asleep and with ruffled feathers. The bird will lose all appetite and will have great thirst which is a good sign of high fever: it will drink eagerly until it can no longer retain the water in the crop and spills it when

the head is lowered. The legs will be very hot and dry, comb will be pale and sometimes dry with a rough surface and later turning purple and sometimes nearly black. The first discharge from the bowels is very thick, and later gets less solid and quite watery. As the inflammation of the linings of the bowels increases the discharge shows slight bloody streaks and will sometimes increase until the excrement is nearly pure blood. The crop is frequently found distended with a rank foul smelling liquid. Birds affected with cholera lose flesh very rapidly and in a short time they will have no strength and will die from exhaustion.

The diarrhoea which is nearly always present is one of the chief symptoms. It will soil the feathers about the vent and will often cake on them giving a very unsightly appearance which is of a greenish color. The chief symptoms to be depended on in diagnosing a case are as follows: pale face, comb and wattles, yellowish or greenish diarrhoea, frequent discharge of excrement, lack of life and moping around half asleep.

Treatment.

The treatment of cholera is very unsatisfactory and if you wish to try to treat the sick birds you should begin at once and do not wait until the bird is ready to die before you begin. If you do the bird will be so weak that medical treatment will be of little use. I would not advise anyone to try to treat fowels with cholera unless they are very valuable ones Kill all diseased specimens at once; disinfect all houses and runs and continue to do so as long as the disease lasts. Remove the sick birds from the well ones as soon as possible and place them clear out of reach of the well ones; wash all drinking vessels out daily with scalding water.

All sick birds should be fed highly concentrated food, such as bread soaked in beef juice, or feed beef juice from a spoon. This kind of food is very nourishing and strengthening to the sick bird. When the trouble is first noticed, give the bird a table spoonful of castor oil and follow this in thirty minutes with a tablet containing 1-200 of a grain of arsenite of copper every three or four hours

or give 1-1000 of a grain tablet of carrosive sublimate (mercury bichloride) every three hours.

The following prescription is also an effective remedy: Sulphur 8 ounces, pulverized charcoal 4 ounces, pulverized capsicum 2 ounces, pulverized rhubarb 3 ounces, carbonate of iron 8 ounces, pulverized opium 1-2 ounce, and pulverized gold seal 2 ounces. Mix thoroughly and keep in an air tight bottle or box to preserve strength. Make a pill about the size of a small pea and make the sick bird swallow one three times a day.

Give both the sick and well birds a few drops of creolin in their drinking water. Cremate all birds that die. The bird has no use of the neck muscles at all and in some Remember that cholera is a germ disease and very highly contagious and prompt treatment and thorough disinfection are the only means of stamping it out.

WHITE DIARRHOEA OR BOWEL TROUBLE IN SMALL CHICKS.

A Disease that Kills More Small Chicks than all Other Diseases Combined—What the Disease is—Its Cause, Symptoms and Treatment.

This one disease kills more small chicks than all other diseases combined. Nearly everyone who has raised chicks in their time has had more or less experience with this dreaded disease. This disease may go under many different names but it is all the same disease and comes from the same cause. It is known as white diarrhoea, bowel trouble, pasting up, etc. It is a very common thing to hear people say that their chicks are dying from bowel trouble, sleeping themselves away etc., and I believe we hear it more now than we did a few years back and this is good proof that it is growing rapidly and there must be something done to prevent its spread. You can prevent it if you take it in time and I believe stamp it out of your flock altogether. At least I have been successful with it during the last few years. How discouraging it is to have a nice lot of chicks come off and in a few days they will

begin to die off and before you know it you have lost the whole bunch. The trouble is weak germs and you cannot do anything for them only let them die. You have to work on the breeding stock before you can expect any results.

Cause.

The principal cause of this dreaded disease is a parasite called Coccidium tenellium. It can also be caused by over feeding, over heating, etc. In fact most any thing that happens to the little fellows in the early stages of their lives will cause indigestion to appear and of course diarrhoea will now play its important part. This small parasite will cause weak germs: eggs that would have hatched strong healthy chicks under other conditions would not where these parasites or germs are present. This germ or parasite will get into the intestines and egg organs of the breeding stock and every egg that is laid by a hen or pullet with these parasites present will hatch a chick that will be weak and will die from white diarrhoea. The yolk of the egg will be contaminated with these parasites which will get there while the egg is forming. Of course the chick has to live on the yolk of the egg for a few days after it is hatched for nature provides food for it in this manner and this is one reason we should not feed our chicks for at least forty-eight hours, and is it any wonder the chick will never amount to much and die during the first week of its life, with such food as this which is full of these deadly parasites?

We very often hear poultry people make the remark that "my chickens die in the shell and are not able to get out," and that "my eggs do not hatch well and what chicks I do get are not growing any and seem to have no energy to hustle for a living but prefer to stay under the hover and sleep themselves to death." These are very common among poultry raisers today and these parasites are the cause of the whole trouble. I will stick to it that this one trouble will kill more small chicks than all other diseases combined, and I think most everyone will agree with me.

How the First Symptoms Appear.

You can tell a weak germed chick as soon as it is

hatched; they are not as plump and thrifty as the strong germed fellow. Weak germs will show up very readily. If you notice a chick hanging around under the hover pretty close you might just as well count him out for it will not be long before he passes away. They refuse to eat with the rest of the flock, have no energy to follow the rest and will sit and sleep themselves to death; and you can often find them where they were sitting in the sun and dropped over dead. In about three or four days after they come off the symptoms will appear, and they will later begin to show up more plainly. The diarrhoeal discharge will now appear and they will paste up. The excrement will be a whittish looking substance and this is where it took its name "white diarrhoea."

If you will open a chick that has just died from this trouble you will find the liver to be enlarged and of a pale color, the gizzard will be filled with undigested food; in some cases where the chick dies in a day or two after hatched you will find the yolk of the egg undigested. The crop will be full of wind and some cases you will find it full of liquid which has a very bad odor, the chick will be thin and will be nothing but skin and bones. Just nothing more than a shadow. Some cases the chick will last for a week or two but in most cases it will die in from two to four days after it has been hatched. Of course this is governed by the number of parasites present and the severity of the attack.

Treatment.

Preventation is the best treatment you can find; in fact there is no use to try to treat the small chicks for they have no constitution and can not stand treatment. You must study the situation carefully and find out the cause. If it is from overheating, overfeeding or chilling remove the cause at once; but if you are losing them when you know the above causes do not exist you can almost be sure that the trouble is caused by parasites (Coccidium tenellium) and you must get them out of the systems of the breeding stock for this is the seat of the whole trouble.

The best remedy I have found in my investigations is to place some epsom salts in the drinking water of the breeding birds. Place it in there every week or two and

continue through the entire breeding season and this will rid their systems of these parasites. A few drops of creolin is also said to be good and will give good results if placed in the water every week. You must use every effort to prevent the spread of this trouble. Before using the incubator after the hatch you should wash it out thoroughly with a good disinfectant or a strong solution of creolin and water (about one part of creolin to twenty-five parts of water.) Air the egg tray well and if possible let the sun get to all parts of the incubator chamber so as to dry it thoroughly. The floor of the nursery should be removable so that you can substitute fresh material for a floor. If you are hatching with a hen you should treat the hen for these parasites and disinfect the nest well before setting. Dip all eggs in a weak solution of creolin and water and dry well before setting either in incubator or under hens.

Do not let the drooping accumulate for this will tend to spread the disease and make it much harder to work against. Burn or bury all chicks that die from this trouble and try to prevent any further spread. Do not let them get chilled, overheated or overfed. While these things will cause bowel trouble still I think that the small parasite will be found the worst to work against, and unless you start at once to stop the trouble you will find out that your profits will be mighty short during the year.

THE DISEASES OF THE LIVER.

Blackhead—Congestion—Inflammation—Hyperthrophy or Over Fat Liver—With the Cause, Symptoms and Treatment.

Blackhead.

This is a very contagious disease and is confined principally to turkeys. It generally runs through the whole flock before you have any chance to check it. Young birds fall its prey more so than adult birds. The cause of this disease is a small parasite that works on the liver of the bird and it is very hard to control and after it has be-

come established, heroic measures must be taken at once. The symptoms of blackhead are as follows: general weakness with very little appetite; the bird will be weak from the start and will have no energy at all to move about. There is always a constant diarrhoea. In a day or so the head will turn dark, later black and this is where the disease first took its name.

Treatment.

As soon as you notice a case in your flock you should begin at once to stamp it out and it will take heroic measures to do so. Isolate all birds affected and do not allow the well birds to run with the sick ones if you do you can not expect to get satisfactory treatment or results. The best treatment is preventation in fact this is best with all diseases. It will be better to kill all affected birds and cremate them and then begin to disinfect the houses and yards thoroughly with a good reliable disinfectant. The germs of this disease are thrown off from the bowels and as the diarrhoea is severe hence the danger of infection is very great; and always keep the birds isolated in dry, well ventilated coops. If you wish to treat the sick birds you can give the following three times a day. Hyposulphite of soda 2 grains, sulphate of cinchonidia 1 grain, sulphur 10 grains, and sulphate of iron 1 grain. Mix thoroughly and give a teaspoonful in soft food for each bird. Place a teaspoonful of hyposulphite of soda in a gallon of drinking water; this will also be found effective.

Congestion of the Liver.

This is another disease that you do not realize you have until the bird is in a very bad shape. You very seldom notice the early symptoms of this disease. About the only symptom you notice is the comb getting a little dark. After the bird reaches this stage there will be a slight diarrhoea which will be a watery color at first later changing to a yellowish color. The bird has no appetite and will move from place to place without any ambition to eat or take any exercise. Congestion of the liver is caused from improper feeding and if you take a case in time you will be able to bring the bird back to its normal health again.

Treatment.

Cut out the corn and corn meal and make the mash at least one-half cut clover or just as much as the bird will eat; also feed fresh cut green bone. If it is in the winter months give them a good clean deep litter to work in and if during the summer months give them free range on nice grassy runs. Place the sick bird in a dry, well lighted coop and the first thing you must do is to give it a teaspoonful of castor oil. After you get results from this you can then refrain from all medical attention and then depend upon proper food and care to bring the bird back to normal health. Make the bird take plenty of exercise and feed only a plain diet.

Inflammation of the Liver.

It is very hard to diagnose a case of liver trouble for the symptoms appear very slow and you have to wait until the disease is at its worst before you can determine just what it is. Inflammation of the liver works very much like a congested liver and the symptoms are much alike. The bird will have no energy to move about, the breathing will be sluggish, the abdomen will in some cases be swollen, the skin will show a yellowish hue and the comb will be very pale and later turning dark. The bird will not eat much and after several days pass it will be nothing more than skin and bones.

Treatment.

Give the bird a teaspoonful of castor oil and clean the bowels out; then begin to get the bird to take light diet for a few days. A little bread soaked in sweet milk will be good for it; or beef juice fed to the sick bird will help to strengthen it. In the drinking water place ten drops of nux vomica in a pint and allow no other drink for a week at least. The bird must be kept in a quiet place until it is entirely well and feed very sparingly what you do feed.

Hypertrophy of the Liver.

The name of this trouble will readily tell you how it affects birds. An over large liver is found mostly in the early spring after the birds have been closed up all winter and have been fed on food that tends to produce fat and

enlarges the liver. This generally appears in hens after they are over two years old. This is caused from constant over feeding of heat producing foods without any vegetable foods. Overfeeding without exercise is bound to cause you some trouble sooner or later. When you see a hen staying on the roost late and returning early in the afternoon it is time to begin to get busy. At this time the comb of the bird will be very bright and she seems to be in perfect health; after a few days she will become weak and her walk will be very unsteady and she will stand in one position for hours. When you pick the bird up you will readily see that she is over fat.

Treatment.

Change your method of feeding. Make them exercise after all grain food you give them in a deep straw litter. Cut out all fat forming or producing foods and make the mash at least one-half cut clover.

If it is during the summer months give them free range on a grassy orchard or field where there is plenty of shade. For the sick bird give a teaspoonful of powdered muriate of ammonia in a quart of water and allow no other drink for a week, giving fresh supply twice a day. Give fresh cut green bone to the sick bird but only in very small quantities. Avoid stimulating foods. Feed very sparingly after this so as to not get your birds over fat. If you will make them exercise after most of their food this will be found a good preventative.

INTERNAL DISEASES

Two Varieties, the Round Worm and Tape Worm. The Round Worm is the More Common of the Two.

There are two kinds of worms that are common and are found in most birds. They are the round worm and the tape worm. If you have dressed many birds you no doubt have noticed them more or less in the digestive canals of the birds. The round worm is more common than the tape worm and is not very troublesome unless they are present in large numbers. If there are only a

few present in the digestive canals of birds there will be little trouble from them and they are unnoticed but otherwise they will play a great part and affect digestion quite a lot. They will cause diarrhoea when present in large numbers and also great irritation. They are seldom passed with the excrement but when they are they are soon eaten by other birds hence this is the way they are spread. The color of the round worm is white and they vary in size from one-third to four or five inches in length. Their head is very sharp while their tail is very blunt. The symptoms are about the same as those of diarrhoea and the comb will be pale and the bird will be thin and have little energy to move about. In real bad cases there will be a slight diarrhoea.

Treatment.

As soon as you suspect worms begin at once and try to remove them. Mix four (4) ounces of turpentine and four (4) ounces of sweet oil and give one teaspoonful to adult fowls. Follow this with some good laxative. Castor oil will be good. Give a teaspoonful to each bird. Two grains of santonin to each bird will also be found to give satisfactory results. Watch for results from these treatments and be sure to gather all droppings so as to keep out of reach of well birds.

Tape Worm.

This variety of worm is not at all common among fowls and you often run across a person who never saw a tape worm and he has kept birds most all his life. The name of this worm derived from the great length and thinness of it which very much resembles a piece of tape. The symptoms are about the same as those of the round worm. Their food seems to do them but little good and they will have a fine appetite and still be very thin and seem nothing but skin and bones. There will be a slight diarrhoea. Some times you will notice small pieces of the worm pass with the excrement. It is now time to begin your work.

Treatment.

Just as soon as you know or in fact suspect a tape worm is present you should begin at once to destroy same.

When treating the bird it will be well to do so when the crop is empty in the early morning. Give it six drops of oil male fern in one teaspoonful of castor oil. About three hours after you give the above treatment give a light mash to which a teaspoonful of castor or sweet oil has been added. Feed on light diet for a week before returning to ordinary food.

All droppings should be burned and the premises should be well disinfected with a good strong disinfectant. Try to keep both the round and tape worms from spreading through the excrements.

THE CROP.

Its Three Diseases With Their Symptoms and Treatment.

This is one trouble that I think most every person who raises fowls have had more or less experience with. If they haven't their time will come. Even if you give your birds good attention and the proper food it is liable to affect your birds. Most cases come from improper feeding but still some cases will appear when you are not in fault at all. The bird will sometimes eat old dead grass and chaff this will gather in the crop and form a ball then it is impossible for it to pass from the crop. Overfeeding of too much grain, especially corn will cause it. The bird will eat until it can't hold any more in its crop then go to the drinking vessel and drink which will cause the contents to swell and ferment; now you have a bad case of crop bound to deal with.

When birds are kept housed all winter and are turned out in the early spring they will be eager to eat grass hence they will eat quite a lot of dead grass which may be very long; this will gather into a ball in the crop and can't possibly get out of the crop. Such cases as this are always troublesone to handle.

Often we run upon a case where there is some foreign body closes the outlet of the crop; this might be wood, bone, etc., with a sharp point sticking into the side of the crop which prevents it from passing on through. Such

cases will usually correct themselves for any thing a bird can swallow will pass through the digestive canals.

Symptoms.

The bird seems dull and slow to move about especially if it has been in this condition for some time. There will be loss of appetite and the bird will be very sleepy. The liquid that gathers in the crop will be very offensive and will run from the mouth. Diarrhoea will usually appear after a few days or a week, and the feathers will be looking very rough and will be standing on their ends. The general appearance of the bird is one of dejection.

Treatment.

In treating crop bound birds the first thing you must do is to empty the contents of it. First give the bird a small quantity of castor or sweet oil and then try to empty it by manipulation. Hold the head of the bird down and with gentle pressure and working try to get the contents out through the mouth of the bird. Have patience and do your work with great care. You cannot expect to get it out in a few minutes for this would be impossible. After working for a little while you see you will not be able to get satisfactory results you will have to try some other means. You will now have to

OPEN THE CROP AND REMOVE THE FOOD

or contents in this manner. It is best to have an assistant to help you, so you will have both hands free. First remove the feathers from over the crop or where you want to make the incision so as to leave a bare place about three-fourths of an inch wide by two inches long. Now have a sharp clean thin bladed knife cut through the skin (not into the crop) and allow the blood to flow freely. Let this opening be about two inches long. After it ceases to bleed then take the incision in the crop about one inch long or not so much if you think you can empty the contents through a small opening. Now you can begin to empty the crop; if its contents is of long grass and chaff you will have to use some instrument like a shoe buttoner to get it out. Use great care and do not try to remove it all at once but only in small bunches. After you get it

empty you can then wash it out thoroughly and examine the outlet to see if there is any obstruction in it, if not you can then begin to sew it up. This can be done with white silk thread or regular cat gut and a small fine needle. Sew the crop and skin separate. Take three stitches in the crop and tie separate leaving the ends long. Now take about four stitches in the outer skin and leave long ends here. After about ten days you can cut the ends off. After the operation you can give the bird a little beef juice this will strengthen it. Do not feed solid food until the bird is entirely well, then give it in very small quantities. Let all food be sparingly for ten days. Avoid too much food in the crop which might break the stitches.

If you will give the bird ten drops of nux vomica in a quart of drinking water this will be a splendid tonic and will strengthen the weak bird more than any thing else until it is able to take food. If you have waited for quite a while before emptying the crop the bird will be mighty weak and scarcely able to stand upon its feet. Such cases should be and must be handled carefully.

Inflammation of the Crop.

Inflammation of the crop is caused from the bird eating something irritating; such as rough on rats, paint skins and pieces of unslacked lime. The mucous lining of the crop becomes inflamed and causes the bird lots of pain. I have known cases of this trouble where red pepper has been fed to produce more eggs. Many people try to force their birds for eggs, this is wrong and should not be done for it will lead to trouble nearly every time. A bird that has this trouble is very restless and will move from place to place without any aim. It will also be noticed that the bird will try to swallow still it has not taken any food for hours The crop is very tender and painful. It causes the poor bird much pain.

Treatment.

If the crop is full of food try to empty it at once. After you succeed in getting it emptied give the bird flax seed tea and give very simple diet for several days. If you discover this inflammation is caused from lime give

weak vinegar water; if rough on rats give magnesia. Another good remedy is as follows: Give milk, barley water or some other albuminous fluids after first evacuating the crop. If the trouble is from lead or paint skins which is very often the case where painters have been working; you should administer without delay half a teaspoonful of sulphate of magnesia and five grains of sulphuric acid, mixed thoroughly in one-half pint of water. After two hours give a teaspoonful of castor oil in a grain of opium.

Remember that paint, crude or ounslacked lime is an irritant poison and either will cause inflammation of the crop, gizzard and intestines and great care should be taken to take it out of the reach of the fowls. Remember that unless you administer something at once that will stop the irritation it will be hard to affect a cure.

Enlarged Crop.

This trouble will annoy the owner more than it does the fowl. It is brought about by a continual stretching of the crop from overfeeding or impaction of the crop, which are allowed to correct themselves. This trouble is not at all pleasing to look at for there is always food in the crop which the weakened muscles can not push on to the gizzard to be ground or digested. This food has a tendency to pull downward and in this way the crop will still get larger.

Treatment.

The only way to treat such cases is to pluck the feathers from over the crop and make an incision as for crop bound only make it longer. With a pair of small scissors cut out quite a lot of the membrane and sew up as directed in crop bound and be sure that you sew the crop and skin separately. Do not feed hard food for ten days at least and feed very light then. At the end of six days remove any threads that may be showing. Cut with scissors close to skin. Try to prevent any further cases by the proper feeding.

CHAPTER VII.

THE ABDOMEN AND EGG ORGANS

The Cause, Symptoms and Treatment of All Diseases Known to Affect the Abdomen and Egg Organs.

Prolapsus of the oviduct is a disease that is confined mostly to old hens. It is not at all a common disease among them but we very often run across a case of it in the late winter when our birds have been housed up all winter and have been fed on over stimulating food. Pullets are not at all exempt from it. The cause can be traced back to hens that have been laying extra large eggs and have been overfed. Constipation will also cause it if allowed to run on for a while. It has also been noticed after a severe case of inflammation of the oviduct.

Symptoms.

There is a protrusion from the vent which may be of a dark red to a greenish hue in color. It seems to be very highly inflamed and if something is not done it will likely develop into gangrene. The bird will sit and strain as if trying to expel an egg and will very often go in a nest. The comb will be pale.

Treatment.

Place the bird in a coop away from the rest of the flock so as to keep her quiet. Grease the parts well with carbolated vaseline and replace gently with your greased fingers. It will also be well to bathe the parts with a 50 per cent solution of dioxygen and water before replacing them. Give the bird very little food for a few days and let that be a mash. Keep the bowels clean by giving Epsom salts in the drinking water.

Breakdown.

This is another trouble that is confined mostly to old hens after they get three years old or older. It is very easily recognized for the name of the trouble certainly describes their condition. We have very often noticed old hens with this "baggy condition" dragging the ground nearly. It is seldom seen in the pullets and never in the male birds. The cause of breakdown is by feeding too much corn or corn diet altogether. This trouble is very common in farmers' flocks where the birds get nothing but corn the year around. The corn produces large quantities of fat in the abdomen and the result is this "baggy condition" which is very annoying to the owner.

The best thing to do for such cases is to dispose of them at once for market purposes as they will never amount to much any more either for breeding purposes or egg production. The only thing to do is to cut out all corn in the future and try to prevent any more cases. Corn is a splendid food for poultry if you do not go to extremes with it and feed nothing but corn. Dispose of the affected birds and prevent future cases from appearing.

Egg Bound.

This trouble generally appears in the late winter and more deaths result at this time of the year than all other times. It is due to the over fat condition of the bird. It is also more common to larger breeds such as Asiatic classes, etc., than the Leghorns. It is seldom we find a pullet with this trouble but in most cases it is old hens that are in an over fat condition at the time she lays her first egg in the winter. This over fat condition may prevent the egg from being laid in different ways. The fat may be present in such large quantities that it might collect at the lower end of the abdominal cavity and prevent the egg from being passed. Other cases have been found where the fat was present in such large quantities that it weakened the walls of the muscles of the egg passages to such an extent that it caused them to give away and allowing the egg or its contents to pass into the abdomen. The egg passage gives away while the bird is straining trying to expel the egg. Inflammation will then set up in

the abdominal cavity and the bird will not live very long if allowed to run on without any treatment.

A bird in this egg bound condition often dies from heart failure while straining on the nest trying to expel the egg. This is caused by the over fat condition of the bird's system which weakens the muscles of the heart and the over exertion is too much for the weak heart and the result is, we find the bird dead on the nest.

Symptoms.

The bird will move about with little energy with the wings drooped and touching the ground. It will not eat, the tail feathers are lowered and the appearance of the bird in general is certainly a bad one. If you will catch the bird you may be able to see at once what the trouble is. Watch the movements of the vent and you will see the muscles move as if she was trying to lay the egg. The bird will go on the nest and strain trying to lay, but without any results, she will come off, later going on again with failure to accomplish anything as before. The comb will turn pale after the case runs awhile.

Treatment.

In mild cases if you will inject into the vent a small quantity of sweet oil it will be found helpful in assisting the bird to pass the egg. Also give the bird a small dose of castor oil by the mouth. If after a few hours the egg is not passed you should fill a jug with boiling water and hold the bird over it for at least thirty minutes allowing only the vent to be steamed. This will relax the muscles causing the egg to be expelled. If the egg or its contents are now in the abdominal cavity caused from the egg passage giving away, you need not do anything for the bird but kill it and get it out of its misery. Death is sure to follow in such cases. Feed only on light food for several days and do not feed fat forming food.

Dropsy.

Dropsy will affect both old and young birds. It is a disease of the abdomen. Water collects between the tissues. This trouble is caused by unsanitary surroundings and bad methods of feeding. It may also be a symptom of some other disease of the body. The bird will seem in

perfect health only it may be a little sluggish in its movements caused from the water collected in the abdomen. Tumors will also present themselves in connection with dropsy.

Treatment.

Fowls that have had dropsy and have been cured of it will be of little use as breeders and it is well to dispose of all such birds for market purposes. You can treat birds by giving tonics such as nux vomica or tincture chloride of iron. About ten drops of nux vomica can be given the bird in a quart of water. Aud twenty to thirty of the chloride of iron in a gallon of water. Allow no other water for a week or until the bird is on the road to recovery. With the help of tonics, good pure food and water you can expect some change in the birds with dropsy. If the water has collected in large quantity it will be a good idea to puncture the cavity with a fine needle and allow most of the fluid to run out. Boil the needle for an hour in boiling water before using it. Provide sunny house or coop for the sick bird. After removing the water from the bird you can then give it a teaspoonful of sulphate of magnesia in a pint of the drinking water. Feed sparingly for ten days.

Soft Shelled Eggs.

This trouble is usually accounted for by lack of shell making material. In one sense it is a diseased condition and should be looked after promptly. As a general thing it is caused by the bird being in an over fat condition at the time the egg is developing, or forming. Cases have been traced to the inflammation of that part of the oviduct where the shell is formed. When a bird is laying soft shelled eggs it will lead to some other bad trouble and it should be corrected at once.

Treatment.

The only treatment for soft shelled eggs is to supply an abundance of oyster shells, grit, charcoal, for that is free from fat producing qualities, and make the birds exercise after all grain you give them, in a deep litter. Do not forget the green food and supply cabbage, cut clover, etc., at all times. It will be noticed that birds lay more

soft shelled eggs during the late winter months than at any other time of the year. Give five drops of fluid extract of ergot in a pint of water for the affected bird to drink every other day and allow no other drink for a week at least.

Inflammation of the Oviduct.

This disease is very serious indeed and needs careful attention at all times. It causes the bird a great deal of suffering and pain. Inflammation of the oviduct generally appears in connection with an egg bound condition, or cases have been known to start from the over feeding of condiments or "egg foods" which are too irritating to use. It is easy to discover the bird with this trouble for the bird seems to be out of shape and all to pieces as soon as you find it. There is a desire to strain as if the bird is trying to expel an egg and if it does lay there will be blood on it. When the bird is straining in this manner it will sometimes cause a blood vessel to become ruptured and death is certain. The bird will have a high fever at first but as the disease develops the fever will decrease and the bird will loose strength and will die from exhaustion. While this is taking place the bird will stand around drooped and the feathers will stand on their ends with wings dragging the ground. The bird now is certainly disgusting to its owner.

Treatment.

Separate the sick bird from the flock and give it a quiet place. The diet should be your next consideration. Do not feed condiments or stimulating foods but feed more cut clover. If you think there is a broken egg in the oviduct remove it at once for there is no use to try to treat the case if you do not remove the cause. Grease the finger with vaseline and inject into the vent; if you discover an egg broken remove it if possible with great care. If the egg is too far away then you will have to inject the sweet oil into the vent. After the egg is removed the passage should be washed with a weak solution of carbolic acid to a 50 per cent solution of dioxygen and water. Two grains of bicarbonate of soda with 20 grains of Epsom salts will be found helpful if given in the drinking water. Keep the bird quiet for several days.

Peritonitis.

The delicate lining of the abdomen becomes suddenly inflamed, this originates from some other inflamed organ of the abdomen and peritonitis must come from some other trouble of the abdomen. The breaking of a small blood vessel will also cause inflammation to set up and the entire delicate lining of the abdomen is inflamed before you realize what has taken place. There will be a high fever and the temperature of the bird will run as high as 105 to 110 degrees. As the inflammation increases the bird will become weak and finally falling on its side and being unable to walk will lie and die. There is no appetite and breathing is very heavy especially during the last few hours of the bird's life.

Treatment.

Place the bird in a coop away from the other birds and nothing can be done only let the bird die or better still kill it and get it out of its misery. This trouble is incurable and the only thing that can be done is to prevent any more cases from appearing. While the bird is sick give beef juice and fresh sweet milk as nourishment, only a few teaspoonfuls three or four times a day will be sufficient.

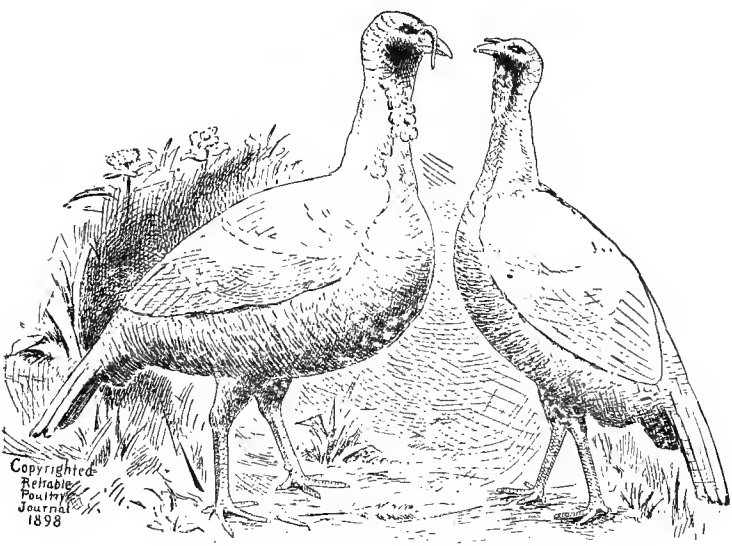
Vent-Gleet.

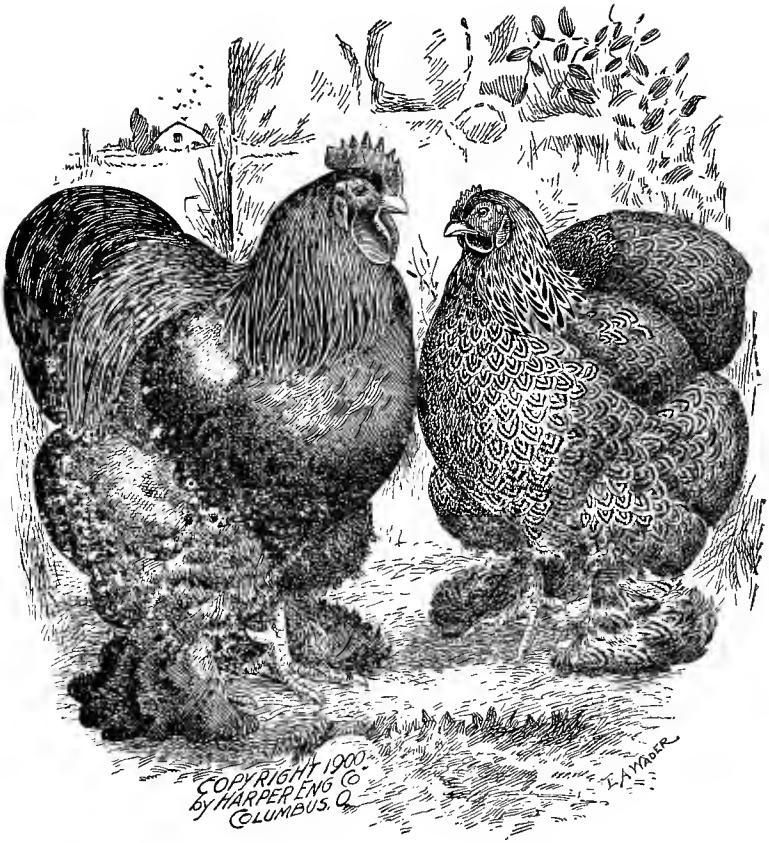
This disease is very contagious and if not attended to at once as it makes its appearance in your flock you will likely be bothered with it quite a lot. As soon as the male bird becomes affected the rest of the hens will have it as it is propagated by copulation. It is an inflammation that attacks the cloaca and you first notice it by a frequent attempt of the bird to pass excrement, but still nothing is passed. The membranes of the vent are swollen and the parts are red and inflamed. There will be a milky discharge which forms a crust on and near the vent. This is very offensive. When you discover a hen with vent-gleet you should issolate her at once so as to prevent any new cases from appearing.

Treatment.

Bathe the inflamed parts in warm water as hot as can

be borne to your wrist, and allow the bird to sit over a steaming kettle, either will be satisfactory. Add two teaspoonfuls of creolin to a gallon of the water. If there are any crusts or scabs present remove them. After bathing in this warm water you can now cleanse the inflamed parts with dioxygen. If the discharge still appears you can take a piece of cotton and soak it in the following solution and insert into the vent three times a day. One ounce of distilled water (or rain water either) sugar of lead three grains and sulphate of zinc three grains. Always shake the mixture thoroughly before using. This will dry up the discharge. If your sick bird is not well in two weeks it will be well to kill and cremate.

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CHAPTER VIII.

PARASITES

Three Different Varieties—Lice, Mites and Fleas—Formulas for Making Lice Powder and Liquid Lice Killer —How to Fight Them.

When your birds appear to be sick and out of condition you had better examine them closely and see if their bodies are not afflicted with some parasite. There are three kinds of parasites that affect poultry; lice, mites and fleas; which are the worst, it is hard to determine if you let either of them alone unmolested. I think lice are noticed more, in fact they are found in larger numbers than the other two. Some of our best poultrymen will tell you today that lice will cause them more trouble than anything else. Lice may be classed as the magic word that means more disease, poor egg yield and a great loss to poultrymen in general. In the winter while the birds are housed up in close houses most of the time, they are almost certain to be full of lice for do not think lice will not breed on birds in the winter time for this is the time they breed and get their work in on them. Lice are in season twelve months in the year, in winter and summer just the same. When fowls are enjoying out door liberty they are not as bad as when they are closed up in houses all winter.

As I have said above if the birds are not doing right and seem to be out of condition, or if your egg yield is falling off the first thing for you to do is to examine the birds closely for lice. If you ask a person if their fowls are lousy they will answer most every time that they are not; when nine times out of ten they are, but they hate to

own up to it. When a person feels sure that his fowls are free from lice it is a very good time to begin work against them for if they have a louse or two on them now they will be lined with them in a month or so. They will breed very fast and soon eat the birds up. While experimenting a few years ago with a hen that was full of these pests she went to sitting and hatched a very nice flock of chicks but it was under great difficulties. Of course the little chicks were full of them as soon as they were hatched. They began to die off until only two were left at the end of two weeks, then they would not grow any and there were no feathers on them which of course was caused by depluming mites. They were the worst looking sights you ever saw and soon died from weakness. In the meantime the hen was nothing but skin and bones, the feathers were eaten up all but the quill, the skin was scaly and she finally died from a bad case of diarrhoea in just seven weeks from the time I set her. This was only an experiment for I wanted to see how long a hen could live under such conditions.

,There are many different varieties of lice, fleas and mites but it is not necessary to describe all of them in order to combat them successfully.

Lice.

A louse possesses six legs and on each leg there are a pair of sharp claws. They live on the body and among the feathers of the birds; their bodies are of an oblong shape, and they vary in color according to the variety and age of them. They do not suck or drink blood from the bird but live on and among the feathers. They might suck or drink blood that might come from the abrasions of the skin but they have no sucking organs. They are a source of great irritation to the bird and if the bird has tender skin it might cause some bad skin disease. Where lice are present they fret and worry the bird so it can not sleep or get any rest at all, but must fight the pests from sun up to sun down and all night. And of course such conditions tend to weaken the bird's constitution and if on little chicks they will be dumpish and have no energy to move around and follow the rest of the brood.

In looking for these pests examine the feathers carefully on the back, then under the wings and on the legs, now examine the cushion on the neck then look between the legs and near the vent. I expect you will find the most around the vent for this is the favorite place for them. If you do not find more than one or two you can use a good lice powder and kill them but if they are very thick you will have to use a more vigorous treatment, and use it about four times at intervals of about ten days.

It is estimated by good authorities that in eight weeks time one louse can produce from itself and its offspring about one hundred and twenty-five thousand lice; so you see what a few will do for you if you do not work against them from the start. Some think that one to two or a half dozen will not hurt any thing much but right here is where you make the mistake.

Lice seem to thrive on birds that are listless or droopy, stunted growth and rough feathered. In adult birds that are affected with these pests the combs and wattles will be pale, there will sometimes be a diarroheal discharge.

Lice rarely ever breed on chicks but are passed from some adult bird to them. They breed on the fowl among the feathers and the warmth of the bird's body hatches the eggs. These eggs are either laid in clusters or singly among the soft fluffy feathers near the vent.

Mites.

Mites are just as bad pests as lice, they will stay on the roosts, nests, sides of the building and in cracks during the day and go onto the fowls at night. The most common is the red or gray mite which breeds in the cracks, etc., or in fact most any place filth is allowed to accumulate. If the roost comes in contact with the wall of the building this is a satisfactory place for them to hide and breed. Mites are unlike lice; they will go onto the bird at night and bite and bore through the skin and suck the blood from it, therefore depriving the bird from its rest and sapping up the best of its vitality; this is the time the bird needs rest and must have it in order to build up the broken down tissues.

A mite that is full of blood is of a redish color but otherwise they are a grey or whitish color. They are about one-fortith of an inch in length which makes them very hard to see with the eye. They often cluster in colonies and congregate for a considerable length of time and in these places they look nothing more than dust and webs.

In sultry summer weather they breed very fast, by the millions and will often attack the birds in the day time if they sit upon the roosts or prefer to stay in the house. They will make the sitting hen leave the nest and if she stays at her post she will soon die from exhaustion and loss of blood which the pests suck from her.

They will also attack horses, cows, etc., and cause great irritation and skin diseases. Mites do not breathe through the pores of their skin like lice, hence dusting them has very little effect on them.

Depluming Mites.

These pests live on the fowls at the base of the feathers and by the operation of these mites will cause the feathers to become diseased and irritated and will fall out, leaving the skin smooth and with a pinkish tint and some times very red. They generally work on the neck and head. Remove the feathers from the affected parts and with the aid of a magnifying glass you can see the depluming mites at the base of the feathers.

For treating these cases there is nothing better than carbolated vaseline; apply every day for about ten days. If you do not begin with the first case that makes its appearance and treat it at once you are liable to be bothered with it quite a lot for the rest of the flock will have them. Keep the coops and brooders clean and use a good disintant.

Fleas.

We rarely ever see any of these pests on fowls, in some sections they are worse than others. They will tear and bite the skin of birds and cause great pain; they are also blood suckers. The females will bury themselves in the skin and cause a watery growth and after it heals up it will leave a scar that has the appearance of a burn.

When the bird is attacked by a great number of these fleas at once it will die if something is not done immediately.

To Eradicate Vermin.

In fighting vermin you must remember the little things and look after them carefully. No douht you have often heard the old maxim which was something like this: "take care of the nickels and dimes and the dollars will take care of themselves." This is pretty true nevertheless, in both cases. Remember that in fighting lice, they are deep into the feathers and for the treatment to be successful it must reach them. Any of the commercial lice powders advertised today are good but if you can get them that contain tobacco dust they will give you better satisfaction for tobacco dust is very poisonous to lice. In dusting lousy birds take them hy the legs, head downward and dust the powder well into the feathers and work it down next to the skin so it will reach the lice, especially among the fluff of the feathers and near the vent where lice are found in large numbers. Treat them every ten days at least for if there are any nits on the feathers after the lice are killed they will hatch out again and soon have the birds covered with the pests again.

A good lice powder can be made at home very cheaply and it will be found satisfactory in every way. Take three pounds of tobacco dust, one-half pound of pyrethum, one ounce of carbolic acid and one pound of air slacked lime. Mix thoroughly and have them well dried and apply as directed above and you will find it will do the work satisfactory.

If you will dust fowls in this manner it will keep the lice down and the fowls will be practically free of them.

You can also free your fowls from lice by using a good liquid lice killer; most that are advertised on the market will do the work all right and in a satisfactory manner but some times you need it when you have not got it and if you should have to order it it would be late and perhaps the lice would eat the birds up before you could get it. A good liquid lice killer can be made at home and very cheap.

It can be made by dissolving naphthaline flakes in kerosene all it will take up then to this add one ounce of

creolin. This is also good to apply to roosts and nests to kill mites. In using this to destroy lice on fowls you will have to have a box large enough for about ten birds; paint the sides and bottom of it with the solution and place the birds in it and cover with a piece of burlap and place some on the burlap. Let the birds stay in the box about thirty to forty-five minutes and if you will remove them you will find the lice on the bottom of the box dead or dying. Four treatments one week apart will be sufficient to kill every louse on them. Have the burlap heavy enough to give the fowls plenty of fresh air for if you do not you might smother them to death.

If you will spray the nests, roosts, dropping boards with a strong solution of creolin and kerosene you will kill every mite present. It is better to use a good spray for in this manner you can get it in every crack and crevice right where they stay and breed. Do not let dust accumulate for these places make good dens for them to breed in. It is a good idea to spray your house every time you clean it out and especially in warm sultry weather when they are at their worst.

In killing head lice on small chicks a little lard with a few drops of creolin added makes a splendid remedy. And a little will go a long way. Carbolated vaseline with the creolin added will be as good. Grease them about twice and that will be sufficient to kill all lice on them.

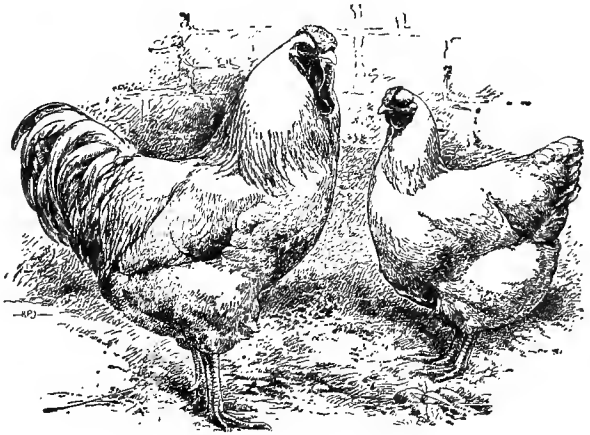
For fleas, sunlight and whitewash is all that is needed. In dark places where dust has accumulated and under trees and bushes soapy water with a little kerosene added will exterminate them.

Dipping Fowls to Kill Vermin.

Fowls can be dipped and every louse or parasite on them will be killed and it is very simple to do. On some warm clear day you can get a large pail for dipping them in and you can dip a very large flock in a very short time. Most any of the dips advertised now will be all right but if you wish you can make one that will give as good satisfaction. Take ten quarts of water heated to about 100 to 110 degrees Fahrenheit and to this add six ounces of creolin and you have a good dip. Let it dissolve well before using. Now you can begin dipping them by holding

the bird by the wings and immerse all except the head, work the bird up and down in the dip for about one minute then remove it and hold on the dripping board which will run it back into the bucket. In this way you save most of your dip. You can also rub the bird and get more of it out and it will make the bird dry quicker. You can let the bird go and dry gradually in the sun or in a heated room. This may be some little bother but you know it is thorough.

There are too many good reliable remedies for killing lice on fowls for a person to let these pests gradually suck the life out of your birds. Birds can not possibly thrive and do well with them on them. They will not lay any eggs, they are certainly a bad looking object for the owner to look upon, they are liable to have all diseases if you do not get them off immediately and in fact I could give you many reasons why you should not let them be bothered with these pests. But I know most everyone is aware of what they will do and cause. And most of the intelligent and up-to-date poultrymen will not stand for such.



CHAPTER IX.

HABITS.

Egg and Feather Eating.

Egg eating is a very bad habit and is extremely annoying to the owner. It is usually caused by over crowding, lack of exercise and the use of nests that are too low on the ground and are too light. Nests should be made as dark as possible so that they cannot see the eggs after they are laid. A desire for meat food will often cause the hen to eat her eggs after she has once gotten the taste of one. The first taste of an egg that they generally get is one that is layed on the roost and broken or is soft shelled. The habit rarely ever makes its appearance in a flock on a free range and one that is fed on a balanced ration.

It is hard to cure a hen of this habit after she has once gotten the taste of the eggs. And it is best to dispose of all hens that have it. They should be eaten or sent to market.

Treatment.

Make your nests darker, give free range and make them work and exercise after all the food they get. Bury it in the deep litter or spade up the earth and bury it. Provide plenty of meat or animal matter. If possible elivate the nests about two feet above the floor; construct the nests so they will not permit the eggs to be scratched out onto the floor and broken; this will often start the habit.

Feed cabbage to them in heads and swing them up so they can pick at it at will and this will keep them busy. Often it can be cured by scattering china nest eggs over the ground and in the houses and nests and after they

find out they can not eat them they will not try to eat any more eggs.

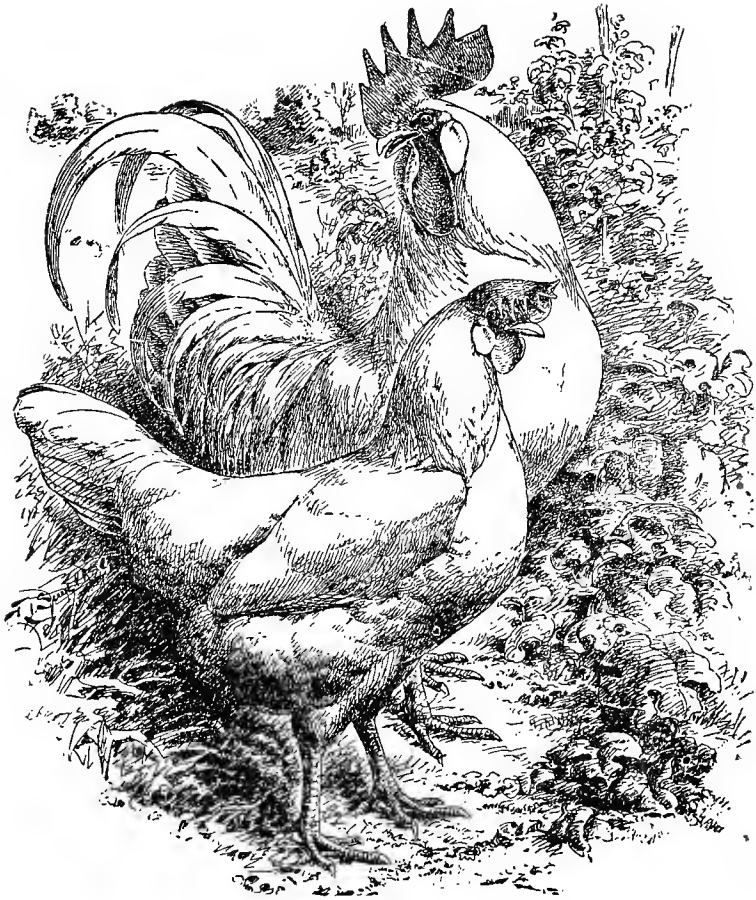
Feather Eating.

This habit is generally caused by insufficient exercise and over crowding. I have noticed cases with all of the feathers eaten off of the neck leaving the neck entirely bare and of course these cases are very annoying and disgusting to the owner. It is usually caused by one certain bird in the flock. When birds are housed up in the winter for weeks at a time they generally get the habit then.

Treatment.

Make close investigation for the hen that is causing the trouble and remove her at once. And it is best to sell her for she will never stop the habit and will be of no use as a breeder. If you will place the birds on free range and make them take more exercise this will often help the matter along quite a lot.

As a treatment apply an ointment of some bitter substance and this will often cause them to stop their habit. Quinine or Aloes mixed with vaseline or lard will make a very good remedy or tobacco boiled in water will be found very satisfactory.

Rub the feathers with either of these remedies and after they have taken one or two of these bitter doses they will not be so keen to eat them any more. There are "poultry bits" being advertised now to keep birds from eating feathers and I have found these very satisfactory and you can get them from any poultry supply house. It is a small piece of leather that fits in the mouth to prevent the bird from closing its mouth or beak on the feather, but in no way will it prevent the bird from eating; they are held in place by a fine wire brought through the nostril.

The best cure for feather eating is to give the birds the right kind of food and make them exercise after all the food you give them and as long as a bird is at work it will not get into any trouble.